

=> FILE REG

FILE 'REGISTRY' ENTERED AT 14:52:46 ON 28 NOV 2005

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STRUCTURE FILE UPDATES: 27 NOV 2005 HIGHEST RN 868740-80-1

DICTIONARY FILE UPDATES: 27 NOV 2005 HIGHEST RN 868740-80-1

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH JULY 14, 2005

Please note that search-term pricing does apply when conducting SmartSELECT searches.

\*\*\*\*\*  
\*  
\* The CA roles and document type information have been removed from \*  
\* the IDE default display format and the ED field has been added, \*  
\* effective March 20, 2005. A new display format, IDERL, is now \*  
\* available and contains the CA role and document type information. \*  
\*  
\*\*\*\*\*

Structure search iteration limits have been increased. See HELP SLIMITS for details.

REGISTRY includes numerically searchable data for experimental and predicted properties as well as tags indicating availability of experimental property data in the original document. For information on property searching in REGISTRY, refer to:

<http://www.cas.org/ONLINE/UG/regprops.html>

=> FILE HCAPL

FILE 'HCAPLUS' ENTERED AT 14:52:50 ON 28 NOV 2005

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FILE COVERS 1907 - 28 Nov 2005 VOL 143 ISS 23

FILE LAST UPDATED: 27 Nov 2005 (20051127/ED)

New CAS Information Use Policies, enter HELP USAGETERMS for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> D QUE

L2 25 SEA FILE=REGISTRY ABB=ON (10377-51-2/BI OR 10549-76-5/BI OR 110-71-4/BI OR 129318-46-3/BI OR 131651-65-5/BI OR 14024-11-4/B I OR 14283-07-9/BI OR 14797-73-0/BI OR 14874-70-5/BI OR 16919-18-9/BI OR 16973-45-8/BI OR 18424-17-4/BI OR 20256-54-6/B I OR 21324-40-3/BI OR 29935-35-1/BI OR 3109-63-5/BI OR 37181-39-8/BI OR 50653-68-4/BI OR 646-06-0/BI OR 66-40-0/BI OR 7447-41-8/BI OR 7704-34-9/BI OR 7791-03-9/BI OR 82113-65-3/BI OR 90076-65-6/BI)

L4 1 SEA FILE=REGISTRY ABB=ON L2 AND F6P/MF

L5 1 SEA FILE=REGISTRY ABB=ON L2 AND CLO4/MF

L6 1 SEA FILE=REGISTRY ABB=ON L2 AND BF4/MF

L8 1 SEA FILE=REGISTRY ABB=ON L2 AND ASF6/MF

L9 7 SEA FILE=REGISTRY ABB=ON L2 AND SULFO?

L10 5 SEA FILE=REGISTRY ABB=ON L9 NOT 1/LI

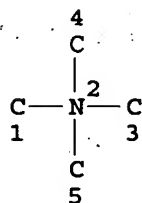
L11 4 SEA FILE=REGISTRY ABB=ON L10 NOT SULFUR

L12 4 SEA FILE=REGISTRY ABB=ON L2 AND AMINIUM

L13 6007 SEA FILE=HCAPLUS ABB=ON L12

L14 7424 SEA FILE=HCAPLUS ABB=ON L4 OR L5 OR L6 OR L8 OR L11

L18 STR



*202,779 structures from query  
covering claim 2 & 3*

NODE ATTRIBUTES:  
DEFAULT MLEVEL IS ATOM  
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:  
RING(S) ARE ISOLATED OR EMBEDDED  
NUMBER OF NODES IS 5

STEREO ATTRIBUTES: NONE

L20 SCR 2040

L22 202779 SEA FILE=REGISTRY SSS FUL L18 AND L20

L27 202656 SEA FILE=REGISTRY ABB=ON L22 NOT 1-3/LI

L28 273391 SEA FILE=HCAPLUS ABB=ON L27

L29 348 SEA FILE=HCAPLUS ABB=ON L28 (L) ELECTROLYT? (L) BATTER?

L30 102 SEA FILE=HCAPLUS ABB=ON L29 (L) LITHIUM

L31 100 SEA FILE=HCAPLUS ABB=ON L30 AND ELECTROCHEM?/SC

L32 4 SEA FILE=HCAPLUS ABB=ON L13 AND L31

L33 6007 SEA FILE=HCAPLUS ABB=ON L28 AND L13

L34 346 SEA FILE=HCAPLUS ABB=ON L33 AND L14

L35 10 SEA FILE=HCAPLUS ABB=ON L34 AND ELECTROLYT? AND BATTER?

L36 12 SEA FILE=HCAPLUS ABB=ON L32 OR L35

=> D L36 BIB ABS IND HITSTR 1-12

L36 ANSWER 1 OF 12 HCAPLUS COPYRIGHT 2005 ACS on STN  
AN 2004:219895 HCAPLUS  
DN 140:238515

*12 CA references with compounds of  
claim 2 or 3 or compounds of 2 and 3  
and 4*

TI **Electrolyte for lithium secondary batteries**  
 IN Jung, Yongiu; Kim, Seok; Kim, Jan-Dee  
 PA Samsung Sdi Co., Ltd., S. Korea  
 SO U.S. Pat. Appl. Publ., 8 pp.  
 CODEN: USXXCO

DT Patent  
 LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2004053129	A1	20040318	US 2003-659363	20030911
	JP 2004103558	A2	20040402	JP 2003-174686	20030619
	CN 1495957	A	20040512	CN 2003-127282	20030912
PRAI	KR 2002-55319	A	20020912		

AB An electrolyte in a lithium secondary battery includes an alkyl ammonium salt having a cation of the following Formula ([NR1-4]+), a lithium salt, and an organic solvent; wherein R1 to R4 are independently a C1-6 alkyl, a C2-6 alkenyl, or substituents thereof. The lithium secondary battery has improved cycle life, high rate characteristics, and a high energy d. due to an increase of the average discharge voltage at a high rate.

IC ICM H01M010-40

INCL 429188000; 429330000

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST **electrolyte lithium secondary battery**

IT **Battery electrolytes**

(Li-S; electrolyte for lithium secondary batteries)

IT Carbonates, uses

RL: DEV (Device component use); USES (Uses)

(acyclic; electrolyte for lithium secondary batteries)

IT Ethers, uses

RL: DEV (Device component use); USES (Uses)

(bicyclic; electrolyte for lithium secondary batteries)

IT Aromatic compounds

Esters, uses

Ketones, uses

Lactones

Sulfates, uses

Sulfites

Sulfoxides

RL: DEV (Device component use); USES (Uses)

(electrolyte for lithium secondary batteries)

IT Secondary batteries

(lithium; electrolyte for lithium secondary batteries)

IT Heterocyclic compounds

RL: MOA (Modifier or additive use); USES (Uses)

(nitrogen; electrolyte for lithium secondary batteries)

IT Heterocyclic compounds

RL: MOA (Modifier or additive use); USES (Uses)

(oxygen; electrolyte for lithium secondary batteries)

IT Imides

Sulfonic acids, uses

RL: DEV (Device component use); USES (Uses)

(sulfonimides, perfluoro derivatives, lithium salts; electrolyte)

for lithium secondary batteries)

IT Heterocyclic compounds

RL: MOA (Modifier or additive use); USES (Uses)  
(sulfur; electrolyte for lithium secondary batteries)

IT Quaternary ammonium compounds, uses

RL: DEV (Device component use); USES (Uses)  
(tetraalkyl; electrolyte for lithium secondary batteries)

IT 66-40-0, Tetraethylammonium 110-71-4 646-06-0, Dioxolane  
3109-63-5, Tetrabutylammonium hexafluorophosphate 7447-41-8,  
Lithium chloride (LiCl), uses 7704-34-9, Sulfur, uses 7791-03-9,  
Lithium perchlorate 10377-51-2, Lithium iodide (LiI) 10549-76-5  
, Tetrabutylammonium 14024-11-4, Lithium tetrachloroaluminate  
14283-07-9, Lithium tetrafluoroborate 14797-73-0, Perchlorate  
14874-70-5, Tetrafluoroborate 16919-18-9,  
Hexafluorophosphate 16973-45-8, Hexafluoroarsenate 18424-17-4,  
Lithium hexafluoroantimonate 20256-54-6, Tetrahexylammonium  
21324-40-3, Lithium hexafluorophosphate 29935-35-1, Lithium  
hexafluoroarsenate 37181-39-8, Trifluoromethylsulfonate  
50653-68-4 82113-65-3, Bis(trifluoromethylsulfonyl)imide  
90076-65-6 129318-46-3, Bis(perfluoroethylsulfonyl)imide  
131651-65-5, Lithium nonafluorobutanesulfonate  
RL: DEV (Device component use); USES (Uses)

(electrolyte for lithium secondary batteries)

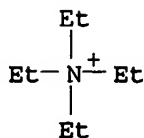
IT 66-40-0, Tetraethylammonium 3109-63-5,  
Tetrabutylammonium hexafluorophosphate 10549-76-5,  
Tetrabutylammonium 14797-73-0, Perchlorate 14874-70-5,  
Tetrafluoroborate 16919-18-9, Hexafluorophosphate  
16973-45-8, Hexafluoroarsenate 20256-54-6,  
Tetrahexylammonium 37181-39-8, Trifluoromethylsulfonate  
50653-68-4 82113-65-3, Bis(trifluoromethylsulfonyl)imide  
129318-46-3, Bis(perfluoroethylsulfonyl)imide

RL: DEV (Device component use); USES (Uses)

(electrolyte for lithium secondary batteries)

RN 66-40-0 HCAPLUS

CN Ethanaminium, N,N,N-triethyl- (9CI) (CA INDEX NAME)



RN 3109-63-5 HCAPLUS

CN 1-Butanaminium, N,N,N-tributyl-, hexafluorophosphate(1-) (9CI) (CA INDEX NAME)

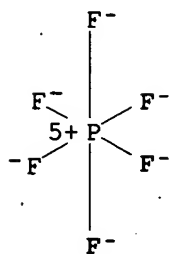
CM 1

CRN 16919-18-9

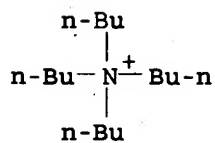
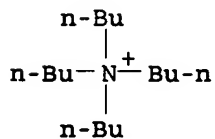
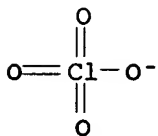
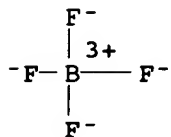
CMF F6 P

CCI CCS



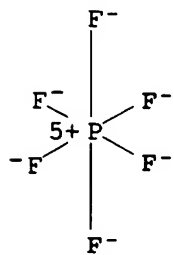


CM 2

CRN 10549-76-5  
CMF C16 H36 NRN 10549-76-5 HCAPLUS  
CN 1-Butanaminium, N,N,N-tributyl- (9CI) (CA INDEX NAME)RN 14797-73-0 HCAPLUS  
CN Perchlorate (8CI, 9CI) (CA INDEX NAME)RN 14874-70-5 HCAPLUS  
CN Borate(1-), tetrafluoro- (8CI, 9CI) (CA INDEX NAME)

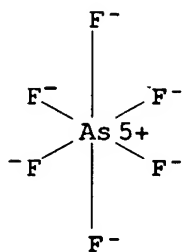
RN 16919-18-9 HCAPLUS

CN Phosphate(1-), hexafluoro- (8CI, 9CI) (CA INDEX NAME)



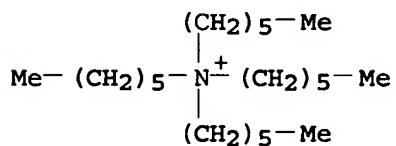
RN 16973-45-8 HCAPLUS

CN Arsenate(1-), hexafluoro- (8CI, 9CI) (CA INDEX NAME)



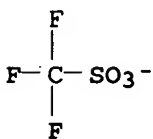
RN 20256-54-6 HCAPLUS

CN 1-Hexanaminium, N,N,N-trihexyl- (9CI) (CA INDEX NAME)



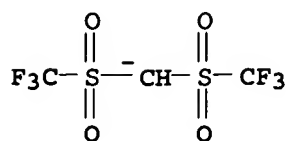
RN 37181-39-8 HCAPLUS

CN Methanesulfonic acid, trifluoro-, ion(1-) (9CI) (CA INDEX NAME)

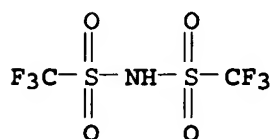


RN 50653-68-4 HCAPLUS

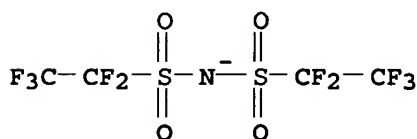
CN Methane, bis[(trifluoromethyl)sulfonyl]-, ion(1-) (9CI) (CA INDEX NAME)



RN 82113-65-3 HCAPLUS

CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]- (9CI)  
(CA INDEX NAME)

RN 129318-46-3 HCAPLUS

CN Ethanesulfonamide, 1,1,2,2,2-pentafluoro-N-[(pentafluoroethyl)sulfonyl]-,  
ion(1-) (9CI) (CA INDEX NAME)

L36 ANSWER 2 OF 12 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2004:219292 HCAPLUS

DN 140:256251

TI Secondary light metal battery

IN Aoki, Masahiro

PA Sony Corp., Japan

SO Jpn. Kokai Tokkyo Koho, 22 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2004087145	A2	<u>20040318</u>	JP 2002-242617	20020822
PRAI	JP 2002-242617		20020822		

AB The battery has a cathode, an anode, and an electrolyte solution containing an electrolyte salt dissolved in a solvent; where the anode capacity is the sum of its light metal intercalating capacity and light metal depositing capacity, and the electrolyte solution contains a cation less noble than the light metal. The light metal is preferably Li, and the cation is selected from ammonium, phosphonium, and sulfonium ions.

IC ICM H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy  
Technology)

ST secondary lithium battery anode capacity; electrolyte soln cation  
secondary lithium battery; ammonium ion electrolyte soln secondary lithium  
battery; phosphonium ion electrolyte soln secondary lithium battery;

sulfonium ion electrolyte soln secondary lithium battery

IT Battery electrolytes  
(electrolyte solns. containing onium salts for secondary lithium batteries)

IT Battery anodes  
(lithium intercalating and depositing anodes for secondary lithium batteries with onium salt containing electrolyte solns.)

IT Fluoropolymers, uses  
RL: DEV (Device component use); USES (Uses)  
(lithium intercalating and depositing anodes for secondary lithium batteries with onium salt containing electrolyte solns.)

IT Secondary batteries  
(lithium; lithium intercalating and depositing anodes and onium salt containing electrolyte solns. for secondary lithium batteries)

IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 21324-40-3, Lithium hexafluorophosphate  
RL: DEV (Device component use); USES (Uses)  
(electrolyte solns. containing onium salts for secondary lithium batteries)

IT 429-07-2, Tetraethylammonium hexafluorophosphate 558-32-7, Tetramethylammonium hexafluorophosphate 3109-63-5, Tetrabutylammonium hexafluorophosphate 12110-21-3, Tetrapropylammonium hexafluorophosphate 32291-45-5 51742-69-9, Tetrapentylammonium hexafluorophosphate 65585-20-8, Trimethylsulfonium hexafluorophosphate 82363-10-8, Tetramethylphosphonium hexafluorophosphate 111928-07-5, Tetraethylphosphonium hexafluorophosphate 111928-21-3, Tetrabutylphosphonium hexafluorophosphate 116737-92-9, Tributylsulfonium hexafluorophosphate 116925-93-0 129024-65-3 201860-43-7 215656-74-9 671180-56-6 671180-57-7 671180-58-8  
RL: MOA (Modifier or additive use); USES (Uses)  
(electrolyte solns. containing onium salts for secondary lithium batteries)

IT 7439-93-2, Lithium, uses 7782-42-5, Graphite, uses 24937-79-9, Poly(vinylidene fluoride)  
RL: DEV (Device component use); USES (Uses)  
(lithium intercalating and depositing anodes for secondary lithium batteries with onium salt containing electrolyte solns.)

IT 429-07-2, Tetraethylammonium hexafluorophosphate 558-32-7, Tetramethylammonium hexafluorophosphate 3109-63-5, Tetrabutylammonium hexafluorophosphate 12110-21-3, Tetrapropylammonium hexafluorophosphate 51742-69-9, Tetrapentylammonium hexafluorophosphate 201860-43-7 215656-74-9 671180-56-6  
RL: MOA (Modifier or additive use); USES (Uses)  
(electrolyte solns. containing onium salts for secondary lithium batteries)

RN 429-07-2 HCAPLUS

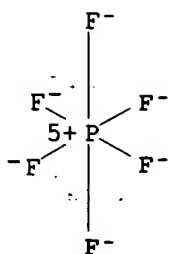
CN Ethanaminium, N,N,N-triethyl-, hexafluorophosphate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 16919-18-9

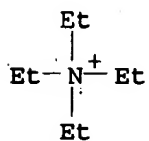
CMF F6 P

CCI CCS



CM 2

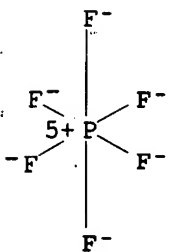
CRN 66-40-0  
CMF C8 H20 N



RN 558-32-7 HCAPLUS  
CN Methanaminium, N,N,N-trimethyl-, hexafluorophosphate(1-) (9CI) (CA INDEX NAME)

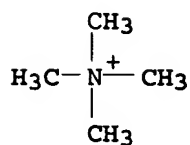
CM 1

CRN 16919-18-9  
CMF F6 P  
CCI CCS



CM 2

CRN 51-92-3  
CMF C4 H12 N



RN 3109-63-5 HCAPLUS

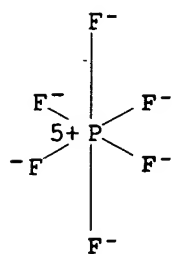
CN 1-Butanaminium, N,N,N-tributyl-, hexafluorophosphate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 16919-18-9

CMF F6 P

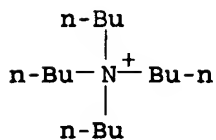
CCI CCS



CM 2

CRN 10549-76-5

CMF C16 H36 N



RN 12110-21-3 HCAPLUS

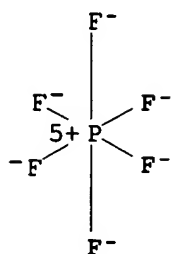
CN 1-Propanaminium, N,N,N-tripropyl-, hexafluorophosphate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 16919-18-9

CMF F6 P

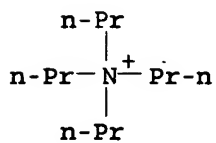
CCI CCS



CM 2

CRN 13010-31-6

CMF C12 H28 N



RN 51742-69-9 HCAPLUS

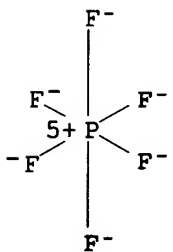
CN 1-Pentanaminium, N,N,N-tripentyl-, hexafluorophosphate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 16919-18-9

CMF F6 P

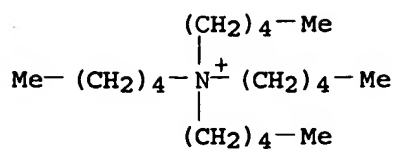
CCI CCS



CM 2

CRN 15959-61-2

CMF C20 H44 N



RN 201860-43-7 HCAPLUS

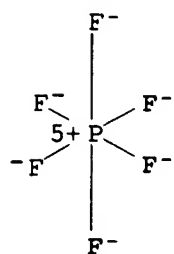
CN Ethanaminium, N,N,N-trimethyl-, hexafluorophosphate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 16919-18-9

CMF F6 P

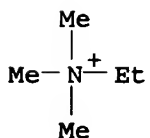
CCI CCS



CM 2

CRN 15302-88-2

CMF C5 H14 N



RN 215656-74-9 HCAPLUS

CN 1-Dodecanaminium, N,N,N-trimethyl-, hexafluorophosphate(1-) (9CI) (CA INDEX NAME)

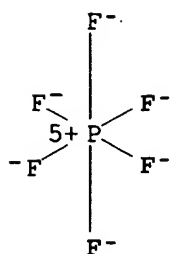
CM 1

CRN 16919-18-9

CMF F6 P

CCI CCS





CM 2

CRN 10182-91-9  
 CMF C15 H34 N

 $\text{Me}_3\text{N}^-(\text{CH}_2)_{11}\text{Me}$ 

RN 671180-56-6 HCAPLUS  
 CN 1-Dodecanaminium, N,N,N-triethyl-, hexafluorophosphate(1-) (9CI) (CA  
 INDEX NAME)

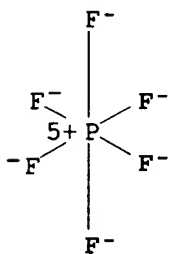
CM 1

CRN 18144-34-8  
 CMF C18 H40 N

 $\text{Me}^-(\text{CH}_2)_{11}\text{N}^+\text{Et}_3$ 

CM 2

CRN 16919-18-9  
 CMF F6 P  
 CCI CCS



L36 ANSWER 3 OF 12 HCAPLUS COPYRIGHT 2005 ACS on STN  
 AN 2003:897099 HCAPLUS  
 DN 140:382217  
 TI Investigation of ionic liquids as electrolytes for carbon  
 nanotube electrodes

AU Barisci, J. N.; Wallace, G. G.; MacFarlane, D. R.; Baughman, R. H.  
CS Department of Chemistry, University of Wollongong, Wollongong, 2522,  
Australia  
SO Electrochemistry Communications (2004), 6(1), 22-27  
CODEN: ECCMF9; ISSN: 1388-2481  
PB Elsevier Science B.V.  
DT Journal  
LA English  
AB The use of ionic liqs. (IL) as electrolytes for electrochem.  
applications involving carbon nanotube (CNT) electrodes has been  
investigated in a brief initial study. The use of IL electrolytes  
in conjunction with CNT electrodes has proved possible and advantageous.  
Ionic liqs. provide relatively high conductivity, wide potential window (up to  
5.5 V) along with chemical stability and nonvolatile nature. While some  
decrease in the electrode capacitance and charging rate are observed in IL  
with respect to conventional electrolytes, the magnitude of the  
decrease is not substantial. The general well defined electrochem.  
behavior of CNT electrodes in IL, coupled to the wide potential window and  
other advantages of these electrolytes, suggest new avenues for  
the design of capacitors, batteries and electromech. actuators.  
CC 72-2 (Electrochemistry)  
ST carbon nanotube electrode ionic liq electrolyte; cond potential  
window chem stability electrolyte electrode  
IT Ionic liquids  
(as electrolytes for carbon nanotube electrodes)  
IT Nanotubes  
(carbon; ionic liqs. as electrolytes for carbon nanotube  
electrodes)  
IT Stability  
(chemical stability; of electrolytes for carbon nanotube  
electrodes)  
IT Electrodes  
Electrolytes  
(ionic liqs. as electrolytes for carbon nanotube electrodes)  
IT Cyclic voltammetry  
Electric capacitance-potential relationship  
Electric impedance  
(of carbon nanotubes in ionic liquid)  
IT Electric conductivity  
(of electrolytes for carbon nanotube electrodes)  
IT Electric potential  
(potential window; of electrolytes for carbon nanotube  
electrodes)  
IT 3109-63-5, Tetrabutylammonium hexafluorophosphate 174501-64-5  
174899-82-2 223437-05-6 370865-89-7, 1-Ethyl-3-methylimidazolium  
dicyanamide  
RL: NUU (Other use, unclassified); PRP (Properties); USES (Uses)  
(electrolytes for carbon nanotube electrodes)  
IT 123-75-1D, Pyrrolidine, derivs. 288-32-4D, Imidazole, derivs.  
16722-51-3, p-Toluenesulfonate, uses 16919-18-9,  
Hexafluorophosphate 17997-40-9 98837-98-0  
RL: NUU (Other use, unclassified); PRP (Properties); USES (Uses)  
(ionic liquid containing; ionic liqs. as electrolytes for carbon  
nanotube electrodes)  
IT 7440-44-0, Carbon, uses  
RL: DEV (Device component use); USES (Uses)  
(nanotubes; ionic liqs. as electrolytes for carbon nanotube  
electrodes)  
IT 3109-63-5, Tetrabutylammonium hexafluorophosphate  
RL: NUU (Other use, unclassified); PRP (Properties); USES (Uses)

(electrolytes for carbon nanotube electrodes)

RN 3109-63-5 HCAPLUS

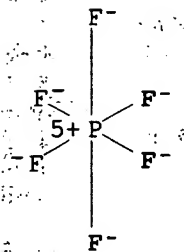
CN 1-Butanaminium, N,N,N-tributyl-, hexafluorophosphate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 16919-18-9

CMF F6 P

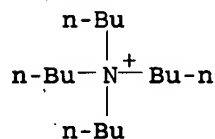
CCI CCS



CM 2

CRN 10549-76-5

CMF C16 H36 N

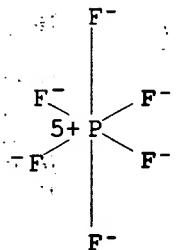


IT 16919-18-9, Hexafluorophosphate

RL: NUU (Other use, unclassified); PRP (Properties); USES (Uses)  
(ionic liquid containing; ionic liqs. as electrolytes for carbon nanotube electrodes)

RN 16919-18-9 HCAPLUS

CN Phosphate(1-), hexafluoro- (8CI, 9CI) (CA INDEX NAME)



RE.CNT 28

THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L36 ANSWER 4 OF 12 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1999:811486 HCAPLUS  
 DN 132:38131  
 TI Polymeric thin-film reversible batteries  
 IN Grunwald, Yaron; Hide, Fumitomo  
 PA Adven Polymers, Inc., USA  
 SO PCT Int. Appl., 46 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA English  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9966572	A1	19991223	WO 1999-US13614	19990616
	W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	US 6096453	A	20000801	US 1998-100203	19980619
	AU 9948238	A1	20000105	AU 1999-48238	19990616
PRAI	US 1998-100203	A	19980619		
	WO 1999-US13614	W	19990616		
AB	An electrochem. energy storage device includes: a polymer electrode having (A) an organic conjugated compound; and (B) an ionically conductive polymer electrolyte. The organic conjugated compound and the ionically conductive polymer electrolyte form a bicontinuous interpenetrating network, in which the organic conjugated compound and the ionically conductive polymer electrolyte form distinct continuous phases. The average phase size of the organic conjugated compound in the bicontinuous interpenetrating network is in the order of nanometers. A separator is electronically nonconductive and contacts the polymer electrode such that the separator facilitates the transport of ions to and from the polymer electrode. Another electrochem. energy storage device includes a surfactant in the polymer electrode to form a bicontinuous interpenetrating network of nanometer scale phase size. Yet another electrochem. energy storage device includes a conjugated compound having a side-chain that has an affinity to a polymer electrolyte and as a result, the conjugated compound and polymer electrolyte form a more compact bicontinuous interpenetrating network.				
IC	ICM H01M004-02				
	ICS H01M004-60; H01M004-04; H01M010-40				
CC	52-2 (Electrochemical, Radiational, and Thermal Energy Technology)				
	Section cross-reference(s): 38				
ST	battery polymer thin film				
IT	Polymers, uses				
	RL: DEV (Device component use); USES (Uses)				
	(co-; polymeric thin-film reversible batteries)				
IT	Polymers, uses				
	RL: DEV (Device component use); USES (Uses)				
	(conjugated; polymeric thin-film reversible batteries)				
IT	Polyoxyalkylenes, uses				
	RL: DEV (Device component use); USES (Uses)				
	(fluorine- and sulfo-containing, ionomers; polymeric thin-film reversible batteries)				
IT	Polyoxyalkylenes, uses				
	RL: DEV (Device component use); USES (Uses)				

(fluorine-containing, sulfo-containing, ionomers; polymeric thin-film reversible batteries)

- IT Conducting polymers  
(ionic; polymeric thin-film reversible batteries)
- IT Azines  
Azines  
Group VA element compounds  
Group VA element compounds  
RL: DEV (Device component use); USES (Uses)  
(phosphazines; polymeric thin-film reversible batteries)
- IT Battery electrodes  
Plasticizers  
Polyelectrolytes  
Secondary battery separators  
Surfactants  
(polymeric thin-film reversible batteries)
- IT Amines, uses  
Bromates  
Bromides, uses  
Chlorides, uses  
Fluorides, uses  
Iodides, uses  
Nitrates, uses  
Oligomers  
Perchlorates  
Phosphates, uses  
Polyamides, uses  
Polycarbonates, uses  
Polyesters, uses  
Polyimides, uses  
Polyoxyalkylenes, uses  
Polysiloxanes, uses  
Polythioalkylenes  
Polyurethanes, uses  
Sulfates, uses  
Thiocyanates  
RL: DEV (Device component use); USES (Uses)  
(polymeric thin-film reversible batteries)
- IT Polyoxyalkylenes, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(polymeric thin-film reversible batteries)
- IT Fluoropolymers, uses  
Fluoropolymers, uses  
RL: DEV (Device component use); USES (Uses)  
(polyoxyalkylene-, sulfo-containing, ionomers; polymeric thin-film reversible batteries)
- IT Ionomers  
RL: DEV (Device component use); USES (Uses)  
(polyoxyalkylenes, fluorine- and sulfo-containing; polymeric thin-film reversible batteries)
- IT Fluoropolymers, uses  
Polyamide fibers, uses  
Polyesters, uses  
RL: DEV (Device component use); USES (Uses)  
(separator; polymeric thin-film reversible batteries)
- IT 51-92-3D, Tetramethylammonium, salt 63-36-5, Salicylate, uses  
66-40-0D, Tetraethylammonium, salt 71-50-1, uses 421-85-2,  
Trifluoromethanesulfonamide 461-55-2, Butyrate, uses 766-76-7,  
Benzoate, uses 1330-69-4, Dodecylbenzenesulfonate 3144-16-9D, Camphor  
sulfonic acid, salt 4358-26-3, Tetraphenylborate 7429-90-5D, Aluminum,

salt, uses 7439-93-2D, Lithium, salt, uses 7439-95-4D, Magnesium, salt, uses 7439-96-5D, Manganese, salt, uses 7440-09-7D, Potassium, salt, uses 7440-17-7D, Rubidium, salt, uses 7440-22-4D, Silver, salt, uses 7440-23-5D, Sodium, salt, uses 7440-39-3D, Barium, salt, uses 7440-46-2D, Cesium, salt, uses 7440-47-3D, Chromium, salt, uses 7440-48-4D, Cobalt, salt, uses 7440-50-8D, Copper, salt, uses 7440-66-6D, Zinc, salt, uses 7440-70-2D, Calcium, salt, uses 10549-76-5D, Tetrabutylammonium, salt 14477-72-6, Trifluoroacetate, uses 14798-26-6, Picrate 16919-18-9, Hexafluorophosphate 17611-22-2, Tetrachloroaluminate 37181-39-8, Triflate 47409-78-9D, Benzenaminium, N,N,N-triphenyl-, salt 48078-03-1D, Tetradecylammonium, salt 66796-30-3, Nafion 117

RL: DEV (Device component use); USES (Uses)  
(polymeric thin-film reversible batteries)

IT 7440-44-0, Carbon, uses  
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)  
(polymeric thin-film reversible batteries)

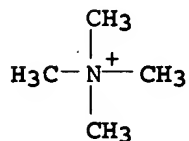
IT 67-66-3, Chloroform, uses 67-68-5, DmsO, uses 68-12-2, Dmf, uses 75-05-8, Acetonitrile, uses 84-74-2, Dibutyl phthalate 95-50-1, o-Dichlorobenzene 96-48-0,  $\gamma$ -Butyrolactone 96-49-1, Ethylene carbonate 105-58-8, 108-32-7, Propylene carbonate 108-90-7, Chlorobenzene, uses 109-99-9, uses 110-71-4 117-84-0, Dioctyl phthalate 616-38-6, Dimethyl carbonate 623-96-1, Dipropyl carbonate 872-50-4, uses 25322-68-3  
RL: TEM (Technical or engineered material use); USES (Uses)  
(polymeric thin-film reversible batteries)

IT 9002-84-0, PtfE 9002-88-4, Polyethylene 9003-07-0, Polypropylene 9003-53-6, Polystyrene 25038-59-9, Polyethyleneterephthalate, uses  
RL: DEV (Device component use); USES (Uses)  
(separator; polymeric thin-film reversible batteries)

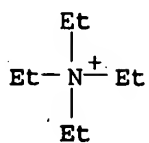
IT 124-26-5, Stearamide 947-05-7, Dodecanolactone 1728-46-7, 2-tert-Butylcyclohexanone 2687-96-9, n-Dodecylpyrrolidinone 3352-87-2, n,n-Diethyldodecanamide 15666-97-4, Octylcyanoacetate  
RL: TEM (Technical or engineered material use); USES (Uses)  
(surfactant; polymeric thin-film reversible batteries)

IT 51-92-3D, Tetramethylammonium, salt 66-40-0D, Tetraethylammonium, salt 10549-76-5D, Tetrabutylammonium, salt 16919-18-9, Hexafluorophosphate 37181-39-8, Triflate 48078-03-1D, Tetradecylammonium, salt  
RL: DEV (Device component use); USES (Uses)  
(polymeric thin-film reversible batteries)

RN 51-92-3 HCAPLUS  
CN Methanaminium, N,N,N-trimethyl- (9CI) (CA INDEX NAME)

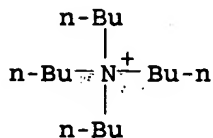


RN 66-40-0 HCAPLUS  
CN Ethanaminium, N,N,N-triethyl- (9CI) (CA INDEX NAME)



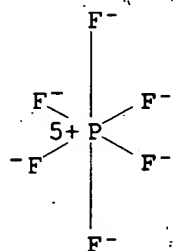
RN 10549-76-5 HCAPLUS

CN 1-Butanaminium, N,N,N-tributyl- (9CI) (CA INDEX NAME)



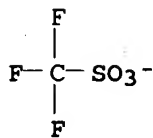
RN 16919-18-9 HCAPLUS

CN Phosphate(1-), hexafluoro- (8CI, 9CI) (CA INDEX NAME)



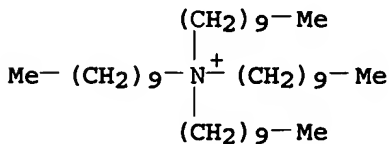
RN 37181-39-8 HCAPLUS

CN Methanesulfonic acid, trifluoro-, ion(1-) (9CI) (CA INDEX NAME)



RN 48078-03-1 HCAPLUS

CN 1-Decanaminium, N,N,N-tris(decyl)- (9CI) (CA INDEX NAME)



RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L36 ANSWER 5 OF 12 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1997:776406 HCAPLUS  
DN 128:160271  
TI Sulfonated polyaniline (SPAN) films as cation insertion electrodes for battery applications Part II: Exchange of mobile species in aqueous and non-aqueous solutions  
AU Barbero, C.; Miras, M. C.; Kotz, R.; Haas, O.  
CS Electrochemistry Section, Paul Scherrer Institut, CH-5232 Villigen PSI, Switz.  
SO Journal of Electroanalytical Chemistry (1997), 437(1-2), 191-198  
CODEN: JECHES; ISSN: 0368-1874  
PB Elsevier Science S.A.  
DT Journal  
LA English  
AB The ion exchange mechanism of chemical sulfonated polyaniline (SPAN) has been investigated by means of probe beam deflection and quartz crystal microbalance in aqueous and non-aqueous electrolytes. Protons are predominantly expelled during the first and second oxidation step in acidic aqueous solution, this expulsion is accompanied by a counterflux of solvent. A minor (10) exchange of anions cannot be excluded. There is no exchange of alkaline metal cations in acidic (pH 1) solns. of salts. In non-aqueous electrolyte, expulsion of cations seems to be the dominant flux during SPAN oxidation, while solvent counterflux plays a significant role. The ion exchange properties of SPAN are favorable for applications such as cation transfer batteries or pH actuators.  
CC 72-2 (Electrochemistry)  
ST sulfonated polyaniline ion exchange process; quartz crystal microbalance probe beam deflection  
IT Electric current-potential relationship  
(of sulfonated polyaniline film)  
IT 7439-93-2, Lithium, properties 7440-23-5, Sodium, properties  
RL: PRP (Properties)  
(and nonaq. soln.molar mass equivalent observed during sulfonated polyaniline for various cations in aqueous solution)  
IT 7647-01-0, Hydrochloric acid, uses  
RL: NUU (Other use, unclassified); PRP (Properties); USES (Uses)  
(current and beam deflection and frequency signal measured during potential excursion of sulfonated polyaniline film in aqueous HCl solution)  
IT 7791-03-9, Lithium perchlorate  
RL: MOA (Modifier or additive use); USES (Uses)  
(cyclic voltammetry and cyclic deflectometry of sulfonated polyaniline film in acetonitrile containing LiClO4)  
IT 75-05-8, Acetonitrile, uses  
RL: NUU (Other use, unclassified); PRP (Properties); USES (Uses)  
(cyclic voltammetry and cyclic deflectometry of sulfonated polyaniline film in acetonitrile containing LiClO4)  
IT 14477-72-6, Trifluoroacetate, properties 14797-73-0, Perchlorate  
14874-70-5, Tetrafluoroborate 14996-02-2, Hydrogensulfate, properties 16887-00-6, Chloride, properties 37181-39-8, Triflate  
RL: PRP (Properties)  
(molar mass equivalent observed during sulfonated polyaniline for various anions)  
IT 66-40-0, Tetraethylammonium cation 7439-95-4, Magnesium, properties 7440-09-7, Potassium, properties 10549-76-5, Tetrabutylammonium cation 12408-02-5, Hydrogen cation, properties  
RL: PRP (Properties)  
(molar mass equivalent observed during sulfonated polyaniline for various cations in aqueous solution)  
IT 14797-73-0, Perchlorate 14874-70-5, Tetrafluoroborate  
37181-39-8, Triflate

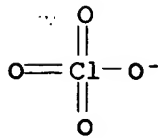


RL: PRP (Properties)

(molar mass equivalent observed during sulfonated polyaniline for various anions)

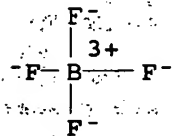
RN 14797-73-0 HCAPLUS

CN Perchlorate (8CI, 9CI) (CA INDEX NAME)



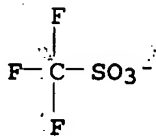
RN 14874-70-5 HCAPLUS

CN Borate(1-), tetrafluoro- (8CI, 9CI) (CA INDEX NAME)



RN 37181-39-8 HCAPLUS

CN Methanesulfonic acid, trifluoro-, ion(1-) (9CI) (CA INDEX NAME)



IT 66-40-0, Tetraethylammonium cation 10549-76-5,

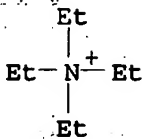
Tetrabutylammonium cation

RL: PRP (Properties)

(molar mass equivalent observed during sulfonated polyaniline for various cations in aqueous solution)

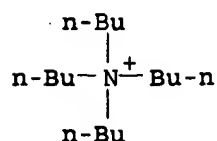
RN 66-40-0 HCAPLUS

CN Ethanaminium, N,N,N-triethyl- (9CI) (CA INDEX NAME)



RN 10549-76-5 HCAPLUS

CN 1-Butanaminium, N,N,N-tributyl- (9CI) (CA INDEX NAME)



RE.CNT 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L36 ANSWER 6 OF 12 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1995:917011 HCAPLUS

DN 123:345616

TI Electrochemical intercalation of ionic species of tetrabutylammonium perchlorate on graphite electrodes. A potential dual-intercalation battery system

AU Santhanam, R.; Noel, M.

CS Central Electrochemical Research Institute, Karaikudi, 623 006, India

SO Journal of Power Sources (1995), 56(1), 101-5

CODEN: JPSODZ; ISSN: 0378-7753

PB Elsevier

DT Journal

LA English

AB A study is conducted on the intercalation of ionic species of tetrabutylammonium perchlorate in propylene carbonate medium in order to develop a dual-intercalation battery system. Cyclic voltammetry, current-time transients, X-ray diffraction (XRD) and SEM measurements are carried out to establish and evaluate the efficiency of intercalation of perchlorate anion and tetrabutylammonium cation. Dual intercalation for both the ionic species can indeed be achieved from the same solvent. Compared with high purity com. graphite material, a graphite polypropylene composite electrode containing 20 weight% polypropylene as a binder (CPP) is found to be more efficient. The intercalation/de-intercalation efficiency increases with electrolyte concentration and reaches up to 55% on this CPP material for both the ionic species. XRD data also confirm the intercalation of both the ions. SEM studies indicate stronger graphite exfoliation during cationic intercalation. Cycling efficiency remains fairly high, however, as long as the intercalation/de-intercalation time does not exceed 10 min.

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 72

ST battery electrode graphite intercalation tetrabutylammonium perchlorate

IT Electrodes

(battery, electrochem. intercalation of ionic species of tetrabutylammonium perchlorate on graphite electrodes)

IT Inclusion reaction

(intercalation, electrochem., electrochem. intercalation of ionic species of tetrabutylammonium perchlorate on graphite electrodes)

IT 7782-42-5, Graphite, uses

RL: DEV (Device component use); USES (Uses)

(electrochem. intercalation of ionic species of tetrabutylammonium perchlorate on graphite electrodes)

IT 1923-70-2, Tetrabutylammonium perchlorate 10549-76-5,

Tetrabutylammonium 14797-73-0, Perchlorate

RL: PEP (Physical, engineering or chemical process); PROC (Process)

(electrochem. intercalation of ionic species of tetrabutylammonium perchlorate on graphite electrodes)

IT 1923-70-2, Tetrabutylammonium perchlorate 10549-76-5,

Tetrabutylammonium 14797-73-0, Perchlorate

RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(electrochem. intercalation of ionic species of tetrabutylammonium  
perchlorate on graphite electrodes)

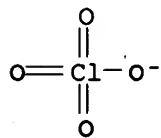
RN 1923-70-2 HCAPLUS

CN 1-Butanaminium, N,N,N-tributyl-, perchlorate (9CI) (CA INDEX NAME)

CM 1

CRN 14797-73-0

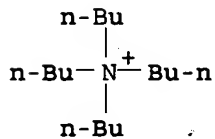
CMF Cl O4



CM 2

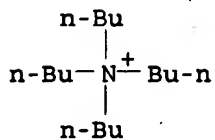
CRN 10549-76-5

CMF C16 H36 N



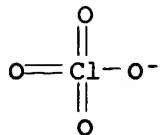
RN 10549-76-5 HCAPLUS

CN 1-Butanaminium, N,N,N-tributyl-, (9CI) (CA INDEX NAME)



RN 14797-73-0 HCAPLUS

CN Perchlorate (8CI, 9CI) (CA INDEX NAME)



L36 ANSWER 7 OF 12 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1991:125883 HCAPLUS

DN 114:125883

TI Electrolyte solutions for secondary lithium batteries  
 IN Koshina, Hide; Eda, Nobuo; Okuno, Hiromi; Morita, Teruyoshi  
 PA Matsushita Electric Industrial Co., Ltd., Japan  
 SO Jpn. Kokai Tokkyo Koho, 4 pp.

CODEN: JKXXAF

DT Patent  
 LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 02281572	A2	19901119	JP 1989-103897	19890424
PRAI	JP 1989-103897		19890424		

OS MARPAT 114:125883

AB The electrolyte solns. contain LiPF<sub>6</sub> and alkylammonium salts. Using these electrolytes enables high-rate charging of the batteries without forming Li dendrites. The alkylammonium salts are preferably R<sub>1</sub>R<sub>2</sub>R<sub>3</sub>R<sub>4</sub>NPF<sub>6</sub> (R<sub>1</sub>-4 = C<sub>1</sub>-4-alkyl), and the concns. of LiPF<sub>6</sub> and of total anions are 0.75-1.5 and 1.0-2.0M, resp. Bu<sub>4</sub>NPF<sub>6</sub> was used in examples.

IC ICM H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST lithium secondary battery alkylammonium salt; butylammonium fluorophosphate electrolyte lithium battery

IT Batteries, secondary  
 (lithium, lithium hexafluorophosphate-tetrabutylammonium hexafluorophosphate mixed electrolytes for)

IT 3109-63-5, Tetrabutylammonium hexafluorophosphate

RL: USES (Uses)

(electrolyte containing lithium hexafluorophosphate and, for secondary lithium batteries)

IT 21324-40-3, Lithium hexafluorophosphate

RL: USES (Uses)

(electrolytes containing tetraalkylammonium salts and, for secondary lithium batteries)

IT 3109-63-5, Tetrabutylammonium hexafluorophosphate

RL: USES (Uses)

(electrolyte containing lithium hexafluorophosphate and, for secondary lithium batteries)

RN 3109-63-5 HCAPLUS

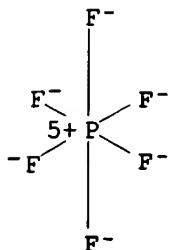
CN 1-Butanaminium, N,N,N-tributyl-, hexafluorophosphate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 16919-18-9

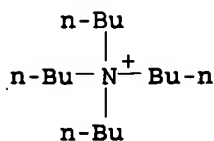
CMF F6 P

CCI CCS



CM 2

CRN 10549-76-5  
CMF C16 H36 N



L36 ANSWER 8 OF 12 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1989:32486 HCAPLUS

DN 110:32486

TI Electrically conductive p-doped polyheterocycles, their preparation, and their use

IN Naarmann, Herbert; Neese, Petra; Naegele, Dieter

PA BASF A.-G., Fed. Rep. Ger.

SO Ger. Offen., 5 pp.

CODEN: GWXXBX

DT Patent

LA German

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 3707693	A1	19880922	DE 1987-3707693	19870311
PRAI	DE 1987-3707693		19870311		

AB Elec. conductive homopolymers of 2,2'-bispyrrole and copolymers of this compound with compds. from the class of 5-membered heterocyclic compds. having conjugated  $\pi$  systems and containing N, O, or S as the heteroatoms are described which have sp. surface areas in the region of 20-500 m<sup>2</sup>/g and higher. Preparation of the polymers may entail the use of atmospheric O<sub>2</sub> or mild oxidizing agents, or it may be accomplished by electrochem. oxidation of the polymer precursors in an electrolytic solution in the presence of conducting salts using propylene carbonate, butyrolactone, or similar aprotic solvents as the electrolyte. Use of the polymers as conductors, as electrodes for electrochem. primary and secondary cells, and for surface coating of ceramic and/or organic natural or synthetic materials is also described.

IC ICM C25B003-10

ICS C08F034-00; C08F002-58; C08G073-06; H01M004-60; B05D007-24; C04B041-83; H01B001-06

CC 76-2 (Electric Phenomena).

Section cross-reference(s): 27, 28, 52, 72

ST bispyrrole polymer elec conductor; battery electrode bispyrrole polymer; electrochem oxidn polymn elec conductor

IT Electric conductors

(bispyrrole-containing p-doped polyheterocycles, with high sp. surface areas)

IT Electrodes

(battery, elec. conducted polyheterocycles for)

IT Polymerization

(electrochem., oxidative, in elec. conductive polymer preparation)

IT 3109-63-5, Tetrabutylammonium hexafluorophosphate 3198-32-1,

uses and miscellaneous 14797-73-0, Perchlorate 16722-51-3,

uses and miscellaneous 16887-00-6, Chloride, uses and miscellaneous

16919-18-9, Hexafluorophosphate anion

RL: USES (Uses)

(in elec. conductive polymer preparation)

IT 75-05-8, Acetonitrile, uses and miscellaneous 96-48-0, Butyrolactone  
108-32-7, Propylene carbonate

RL: USES (Uses)

(in electrochem. polymerization in elec. conductive polymer preparation)

IT 89761-75-1P, 2,2'-Bispyrrole polymer 118256-30-7P, Bispyrrole-pyrrole  
copolymer 118256-31-8P, Azulene-2,2'-bispyrrole copolymer 118256-32-9P  
118256-33-0P, 2,2'-Bispyrrole-methylthiophene-pyrrole copolymer

RL: PRP (Properties); PREP (Preparation)

(preparation of elec. conductive, with large sp. surface area)

IT 109-97-7, 1H-Pyrrole 110-02-1, Thiophene 275-51-4, Azulene  
10087-64-6, 2,2'-Bispyrrole 25154-40-9, Methylthiophene

RL: RCT (Reactant); RACT (Reactant or reagent)

(reaction of, in elec. conductive polymer preparation)

IT 3109-63-5, Tetrabutylammonium hexafluorophosphate  
14797-73-0, Perchlorate 16919-18-9, Hexafluorophosphate  
anion

RL: USES (Uses)

(in elec. conductive polymer preparation)

RN 3109-63-5 HCAPLUS

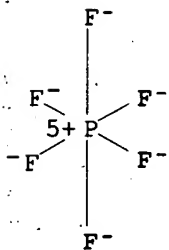
CN 1-Butanaminium, N,N,N-tributyl-, hexafluorophosphate(1-) (9CI) (CA INDEX  
NAME)

CM 1

CRN 16919-18-9

CMF F6 P

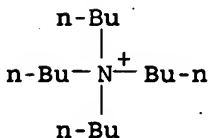
CCI CCS



CM 2

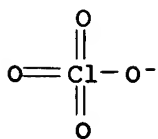
CRN 10549-76-5

CMF C16 H36 N

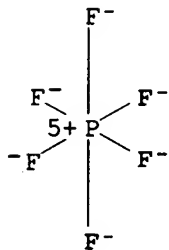


RN 14797-73-0 HCAPLUS

CN Perchlorate (8CI, 9CI) (CA INDEX NAME)



RN 16919-18-9 HCAPLUS  
 CN Phosphate(1-), hexafluoro- (8CI, 9CI) (CA INDEX NAME)



L36 ANSWER 9 OF 12 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1988:496014 HCAPLUS

DN 109:96014

TI Nonaqueous battery

IN Brand, Laura E.; Chi, Ignacio; Granstaff, Shelie M., Jr.; Vyas, Brijesh

PA American Telephone and Telegraph Co., USA; AT and T Bell Laboratories

SO U.S., 8 pp.

CODEN: USXXAM

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 4753859	A	19880628	US 1987-107326	19871013
	EP 312236	A1	19890419	EP 1988-309250	19881005
	EP 312236	B1	19930217		
	R: DE, FR, GB				
	CA 1315842	A1	19930406	CA 1988-579903	19881012
	JP 01128369	A2	19890522	JP 1988-256103	19881013
PRAI	US 1987-107326	A	19871013		

AB A nonaq. Li battery includes an electrolyte comprising a current-carrying species and a solvent of ethylene carbonate  $\geq 15$ , propylene carbonate  $\geq 15$ , and a polyethylene glycol dialkyl ether (triglyme, tetraglyme)  $\geq 15$  mol%. The current-carrying species comprises MPF<sub>6</sub>, MAsF<sub>6</sub>, MClO<sub>4</sub>, MBF<sub>4</sub>, MI, MBr, LiF, LiCF<sub>3</sub>SO<sub>3</sub>, LiAlCl<sub>4</sub>, Et<sub>4</sub>NCl, and/or Bu<sub>4</sub>NCl, where M = Li, Et<sub>4</sub>N, or Bu<sub>4</sub>N. The battery exhibits excellent safety characteristics when exposed to abusive testing, as well as high energy d., good charging and discharging rates, and long cycle life.

IC ICM H01M006-14

INCL 429197000

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST safety lithium nonaq battery; lithium battery glyme electrolyte

IT Batteries, secondary

(lithium, electrolyte solvents in, for safety of high-capacity)

IT Safety

(of lithium nonaq. batteries, electrolyte solvents for)

IT 56-34-8 68-05-3 71-91-0 112-49-2, Triglyme  
143-24-8, Tetraglyme 311-28-4 429-06-1  
429-07-2 429-42-5 1112-67-0 1643-19-2  
2567-83-1 3109-63-5 7550-35-8 7789-24-4, uses and  
miscellaneous 7791-03-9 10377-51-2 14024-11-4 14283-07-9  
14797-73-0 21324-40-3 22505-56-2 29935-35-1  
33454-82-9 89022-85-5

RL: USES (Uses)

(electrolyte containing, for high-capacity and safe lithium batteries)

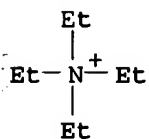
IT 56-34-8 68-05-3 71-91-0 311-28-4  
429-06-1 429-07-2 429-42-5 1112-67-0  
1643-19-2 2567-83-1 3109-63-5  
14797-73-0 22505-56-2 89022-85-5

RL: USES (Uses)

(electrolyte containing, for high-capacity and safe lithium batteries)

RN 56-34-8 HCAPLUS

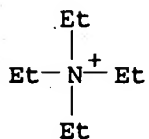
CN Ethanaminium, N,N,N-triethyl-, chloride (9CI) (CA INDEX NAME)



● Cl<sup>-</sup>

RN 68-05-3 HCAPLUS

CN Ethanaminium, N,N,N-triethyl-, iodide (9CI) (CA INDEX NAME)

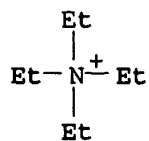


● I<sup>-</sup>

RN 71-91-0 HCAPLUS

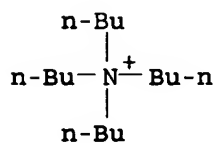
CN Ethanaminium, N,N,N-triethyl-, bromide (9CI) (CA INDEX NAME)



● Br<sup>-</sup>

RN 311-28-4 HCAPLUS

CN 1-Butanaminium, N,N,N-tributyl-, iodide (9CI) (CA INDEX NAME)

● I<sup>-</sup>

RN 429-06-1 HCAPLUS

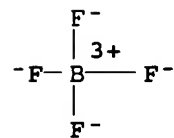
CN Ethanaminium, N,N,N-triethyl-, tetrafluoroborate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 14874-70-5

CMF B F4

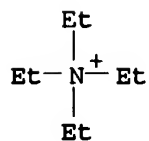
CCI CCS



CM 2

CRN 66-40-0

CMF C8 H20 N



RN 429-07-2 HCAPLUS

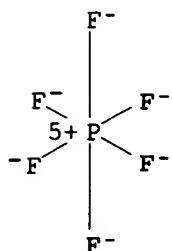
CN Ethanaminium, N,N,N-triethyl-, hexafluorophosphate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 16919-18-9

CMF F6 P

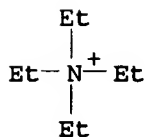
CCI CCS



CM 2

CRN 66-40-0

CMF C8 H20 N



RN 429-42-5 HCAPLUS

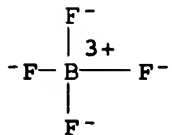
CN 1-Butanaminium, N,N,N-tributyl-, tetrafluoroborate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 14874-70-5

CMF B F4

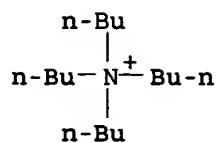
CCI CCS



CM 2

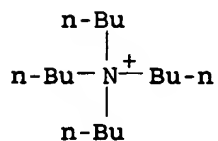
CRN 10549-76-5

CMF C16 H36 N



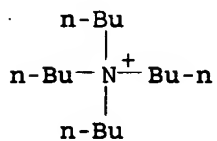
RN 1112-67-0 HCAPLUS

CN 1-Butanaminium, N,N,N-tributyl-, chloride (9CI) (CA INDEX NAME)

● Cl<sup>-</sup>

RN 1643-19-2 HCAPLUS

CN 1-Butanaminium, N,N,N-tributyl-, bromide (9CI) (CA INDEX NAME)

● Br<sup>-</sup>

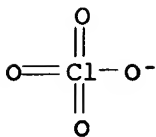
RN 2567-83-1 HCAPLUS

CN Ethanaminium, N,N,N-triethyl-, perchlorate (9CI) (CA INDEX NAME)

CM 1

CRN 14797-73-0

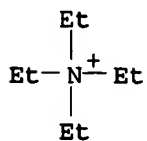
CMF Cl O4



CM 2

CRN 66-40-0

CMF C8 H20 N



RN 3109-63-5 HCAPLUS

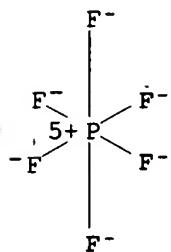
CN 1-Butanaminium, N,N,N-tributyl-, hexafluorophosphate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 16919-18-9

CMF F6 P

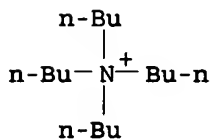
CCI CCS



CM 2

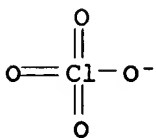
CRN 10549-76-5

CMF C16 H36 N



RN 14797-73-0 HCAPLUS

CN Perchlorate (8CI, 9CI) (CA INDEX NAME)

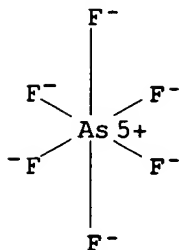


RN 22505-56-2 HCAPLUS

CN 1-Butanaminium, N,N,N-tributyl-, hexafluoroarsenate(1-) (9CI) (CA INDEX NAME)

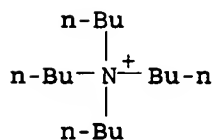
CM 1

CRN 16973-45-8  
 CMF As F6  
 CCI CCS



CM 2

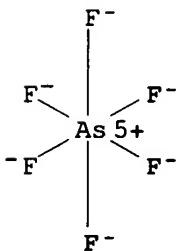
CRN 10549-76-5  
 CMF C16 H36 N



RN 89022-85-5 HCAPLUS  
 CN Ethanaminium, N,N,N-triethyl-, hexafluoroarsenate(1-) (9CI) (CA INDEX NAME)

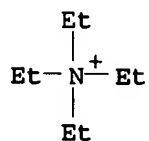
CM 1

CRN 16973-45-8  
 CMF As F6  
 CCI CCS



CM 2

CRN 66-40-0  
 CMF C8 H20 N



L36 ANSWER 10 OF 12 HCAPLUS COPYRIGHT 2005 ACS on STN  
 AN 1984:426190 HCAPLUS  
 DN 101:26190  
 TI Batteries having conjugated polymer electrodes  
 IN MacDiarmid, Alan G.; Heeger, Alan J.; Nigrey, Paul J.  
 PA University Patents, Inc., USA  
 SO U.S., 17 pp. Cont.-in-part of U.S. 4,321,114.  
 CODEN: USXXAM  
 DT Patent  
 LA English  
 FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 4442187	A	19840410	US 1980-220496	19801229
	US 4321114	A	19820323	US 1980-129439	19800311
	IL 62125	A1	19831230	IL 1981-62125	19810212
	CA 1168701	A1	19840605	CA 1981-371175	19810218
	EP 36118	A2	19810923	EP 1981-101464	19810228
	EP 36118	A3	19811007		
	EP 36118	B1	19850502		
	R: AT, BE, CH, DE, FR, GB, IT, LU, NL, SE				
	EP 124702	A1	19841114	EP 1984-102263	19810228
	R: AT, BE, CH, DE, FR, GB, IT, LI, LU, NL, SE				
	AT 13109	E	19850515	AT 1981-101464	19810228
	DD 159387	C	19830302	DD 1981-228144	19810309
	PL 127125	B2	19830930	PL 1981-230065	19810309
	HU 29797	O	19840228	HU 1981-585	19810309
	HU 186386	B	19850729		
	DK 8101081	A	19810912	DK 1981-1081	19810310
	NO 8100812	A	19810914	NO 1981-812	19810310
	NO 152579	B	19850708		
	NO 152579	C	19851016		
	ES 500244	A1	19820116	ES 1981-500244	19810310
	ZA 8101566	A	19820428	ZA 1981-1566	19810310
	SU 1079185	A3	19840307	SU 1981-3254450	19810310
	FI 8100762	A	19810912	FI 1981-762	19810311
	FI 73338	B	19870529		
	FI 73338	C	19870910		
	AU 8168266	A1	19810917	AU 1981-68266	19810311
	AU 537528	B2	19840628		
	JP 56136469	A2	19811024	JP 1981-34052	19810311
	JP 05080109	B4	19931105		
	US 4728589	A	19880301	US 1985-763478	19850807
	FI 8602458	A	19860609	FI 1986-2458	19860609
PRAI	US 1980-129439	A2	19800311		
	US 1980-220496	A	19801229		
	US 1980-22496	A	19801229		
	EP 1981-101464	P	19810228		
	FI 1981-762	A	19810311		
	US 1983-559738	A1	19831209		
AB	Conjugated polymers are doped with ionic dopant species to a preselected				

room-temperature elec. conductivity ranging from that characteristic of semiconductor behavior to that characteristic of metallic behavior, by reversible electrochem. doping procedures. The doping procedures are carried out in an electrochem. cell wherein the polymer to be doped is employed as 1 or both of the electrodes, and the electrolyte is a compound which is ionizable into the ionic dopant species. On operation of the cell, the polymer, if used as the anode, becomes doped with an anionic dopant species to a p-type material; or if uses as the cathode, becomes doped with a cationic dopant species to an n-type material. The electrochem. doping reactions and their reverse electrochem. undoping reactions are used as the charging and discharging mechanisms of novel lightwt. secondary batteries which employ doped or dopable conjugated polymers as 1 or both of their electrodes. Thus, a polyacetylene (CH)<sub>x</sub> [25067-58-7] film of .apprx.10-8/Ω-cm at .apprx.25° was employed as anode of an electrolytic cell having a Pt cathode and an aqueous 0.5M KI electrolyte. A (CHI0.07)<sub>x</sub> film of 9.7/Ω-cm was obtained.

IC H01M004-60

INCL 429213000

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 38

ST battery conjugated polymer electrode; iodine doping

polyacetylene electrode battery

IT Batteries, secondary

(lithium/lithium iodide-doped polyacetylene, performance of)

IT Electrodes

(battery, conjugated polymers for, electrochem. doping for selective modification of performance of)

IT 10549-76-5 14797-73-0 14900-04-0 16919-18-9

17341-24-1, uses and miscellaneous 17341-25-2, uses and miscellaneous

20461-54-5, uses and miscellaneous 37181-39-8 42847-14-3

RL: USES (Uses)

(electrodes from polyacetylene doped with, battery, performance of)

IT 25067-58-7

RL: USES (Uses)

(electrodes, battery, electrochem. doping for selective modification of performance of)

IT 10549-76-5 14797-73-0 16919-18-9

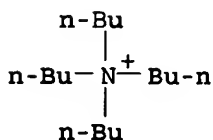
37181-39-8

RL: USES (Uses)

(electrodes from polyacetylene doped with, battery, performance of)

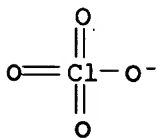
RN 10549-76-5 HCAPLUS

CN 1-Butanaminium, N,N,N-tributyl- (9CI) (CA INDEX NAME)

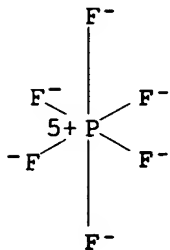


RN 14797-73-0 HCAPLUS

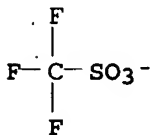
CN Perchlorate (8CI, 9CI) (CA INDEX NAME)



RN 16919-18-9 HCAPLUS  
CN Phosphate(1-), hexafluoro- (8CI, 9CI) (CA INDEX NAME)



RN 37181-39-8 HCAPLUS  
CN Methanesulfonic acid, trifluoro-, ion(1-) (9CI) (CA INDEX NAME)



L36 ANSWER 11 OF 12 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1984:110981 HCAPLUS  
DN 100:110981  
TI Organic solvent for battery  
PA Showa Denko K. K., Japan; Hitachi, Ltd.  
SO Jpn. Kokai Tokkyo Koho, 10 pp.  
CODEN: JKXXAF  
DT Patent  
LA Japanese  
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 58206078	A2	19831201	JP 1982-88765	19820527
PRAI	JP 1982-88765		19820527		

AB In a battery having  $\geq 1$  electrode(s) from an undoped or doped polymer having a double bond(s) in a main chain, a phosphoric ester ROP(O)(OR1)(OR2) (R, R1, R2 = H,  $\leq 15$  C alkyl, aryl, allyl, aralkyl, or halogenated alkyl groups, including R = R1 = R2 = H) is used as an organic solvent. Thus, a solution containing LiClO4 in (EtO)3PO was used for a secondary battery having a polyacetylene cathode and Li anode. The battery had an energy d. 710 W h/1 kg of polyacetylene and charge-discharge efficiency 93%.

IC H01M010-40; H01M004-38; H01M004-60  
CC 72-3 (Electrochemistry)  
ST phosphoric ester solvent electrolyte battery; methyl



phosphate solvent electrolyte battery; polyacetylene  
lithium secondary battery

IT Polyphenyls  
RL: USES (Uses)  
(electrode, in battery with phosphate solvent)

IT Batteries, secondary  
(lithium-polyacetylene, with phosphate solvent)

IT 78-40-0 512-56-1 7664-38-2D, esters  
RL: PRP (Properties)  
(batteries containing, solvent for electrolyte)

IT 25067-58-7  
RL: PRP (Properties)  
(cathode, in battery with lithium and phosphate solvent)

IT 1923-70-2 3109-63-5 7791-03-9  
RL: PRP (Properties)  
(electrolyte, in battery with phosphate solvent)

IT 14874-70-5  
RL: PRP (Properties)  
(polyacetylene doped with, cathode, for lithium battery with  
phosphate solvent)

IT 7440-06-4, uses and miscellaneous  
RL: USES (Uses)  
(polyacetylene-coated, electrode, for battery with phosphate  
solvent)

IT 1923-70-2 3109-63-5  
RL: PRP (Properties)  
(electrolyte, in battery with phosphate solvent)

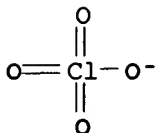
RN 1923-70-2 HCAPLUS

CN 1-Butanaminium, N,N,N-tributyl-, perchlorate (9CI) (CA INDEX NAME)

CM 1

CRN 14797-73-0

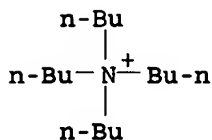
CMF Cl O4



CM 2

CRN 10549-76-5

CMF C16 H36 N



RN 3109-63-5 HCAPLUS

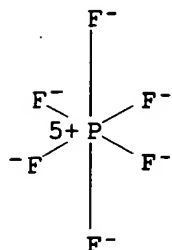
CN 1-Butanaminium, N,N,N-tributyl-, hexafluorophosphate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 16919-18-9

CMF F6 P

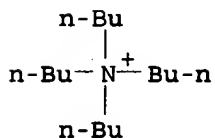
CCI CCS



CM 2

CRN 10549-76-5

CMF C16 H36 N



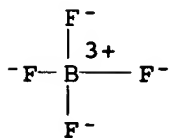
IT 14874-70-5

RL: PRP (Properties)

(polyacetylene doped with, cathode, for lithium battery with phosphate solvent)

RN 14874-70-5 HCAPLUS

CN Borate(1-), tetrafluoro- (8CI, 9CI) (CA INDEX NAME)



L36 ANSWER 12 OF 12 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1982:430195 HCAPLUS

DN 97:30195

TI Electrochemistry of polyacetylene (CH)<sub>x</sub>: lightweight rechargeable batteries using (CH)<sub>x</sub> as the cathode- and anode-active materials

AU Nigrey, P. J.; MacDiarmid, A. G.; Heeger, A. J.

CS Dep. Chem., Univ. Pennsylvania, Philadelphia, PA, 19104, USA

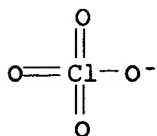
SO Molecular Crystals and Liquid Crystals (1982), 83(1-4), 1341-9

CODEN: MCLCA5; ISSN: 0026-8941

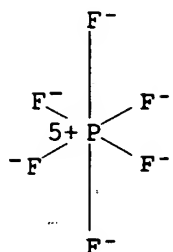
DT Journal

LA English

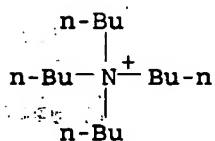
- AB polyacetylene (CH)<sub>x</sub> [25067-58-7] can be controllably doped p-type (oxidized) or n-type (reduced) by simple electrochem. procedures. Cyclic voltammetry studies on free-standing films of cis-(CH)<sub>x</sub> show that (CH)<sub>x</sub> can be reversibly oxidized at .apprx.+3.6 V vs. Li and reversibly reduced at .apprx.+1.4 V vs. Li. The spontaneous electrochem. undoping of p- and/or n-doped (CH)<sub>x</sub>, which occurs when appropriate combinations and configurations of (CH)<sub>x</sub> are used, permits (CH)<sub>x</sub> to be used in the fabrication of lightwt. rechargeable batteries having high power ds. The cis-(CH)<sub>x</sub> can be readily isomerized to the trans-isomer by electrochem. p-doping followed by electrochem. reduction to (CH)<sub>x</sub>.
- CC 72-2 (Electrochemistry)  
Section cross-reference(s): 22, 35, 52, 76
- ST polyacetylene electrochem doping; oxidn electrochem polyacetylene doping; redn electrochem polyacetylene doping; electrode battery polyacetylene; isomerism polyacetylene electrochem doping
- IT Batteries, secondary  
(lithium-polyacetylene with lithium perchlorate electrolyte)
- IT Oxidation, electrochemical  
Reduction, electrochemical  
(polyacetylene, doping in relation to)
- IT Electrodes  
(battery, polyacetylene, for rechargeable cells)
- IT Isomerism and Isomers  
(cis-trans, of polyacetylene, electrochem. doping in relation to)
- IT 14797-73-0 16919-18-9  
RL: PROC (Process)  
(incorporation of, in oxidized polyacetylene by doping)
- IT 7439-93-2, uses and miscellaneous 10549-76-5  
RL: USES (Uses)  
(incorporation of, in reduced polyacetylene by doping)
- IT 25067-58-7D, oxidized and reduced  
RL: PRP (Properties)  
(ion incorporation in, doping in relation to)
- IT 25067-58-7  
RL: PRP (Properties)  
(oxidation and reduction of, electrochem., for controlled doping)
- IT 14797-73-0 16919-18-9  
RL: PROC (Process)  
(incorporation of, in oxidized polyacetylene by doping)
- RN 14797-73-0 HCAPLUS
- CN Perchlorate (8CI, 9CI) (CA INDEX NAME)



- RN 16919-18-9 HCAPLUS
- CN Phosphate(1-), hexafluoro- (8CI, 9CI) (CA INDEX NAME)

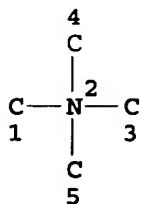


IT 10549-76-5  
 RL: USES (Uses)  
 (incorporation of, in reduced polyacetylene by doping)  
 RN 10549-76-5 HCAPLUS  
 CN 1-Butanaminium, N,N,N-tributyl- (9CI) (CA INDEX NAME)



=> => D QUE

L2 25 SEA FILE=REGISTRY ABB=ON (10377-51-2/BI OR 10549-76-5/BI OR  
 110-71-4/BI OR 129318-46-3/BI OR 131651-65-5/BI OR 14024-11-4/B  
 I OR 14283-07-9/BI OR 14797-73-0/BI OR 14874-70-5/BI OR  
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 I OR 21324-40-3/BI OR 29935-35-1/BI OR 3109-63-5/BI OR  
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 7447-41-8/BI OR 7704-34-9/BI OR 7791-03-9/BI OR 82113-65-3/BI  
 OR 90076-65-6/BI)  
 L4 1 SEA FILE=REGISTRY ABB=ON L2 AND F6P/MF  
 L5 1 SEA FILE=REGISTRY ABB=ON L2 AND CLO4/MF  
 L6 1 SEA FILE=REGISTRY ABB=ON L2 AND BF4/MF  
 L8 1 SEA FILE=REGISTRY ABB=ON L2 AND ASF6/MF  
 L9 7 SEA FILE=REGISTRY ABB=ON L2 AND SULFO?  
 L10 5 SEA FILE=REGISTRY ABB=ON L9 NOT 1/LI  
 L11 4 SEA FILE=REGISTRY ABB=ON L10 NOT SULFUR  
 L12 4 SEA FILE=REGISTRY ABB=ON L2 AND AMINIUM  
 L13 6007 SEA FILE=HCAPLUS ABB=ON L12  
 L14 7424 SEA FILE=HCAPLUS ABB=ON L4 OR L5 OR L6 OR L8 OR L11  
 L18 STR



NODE ATTRIBUTES:  
 DEFAULT MLEVEL IS ATOM  
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:  
RING(S) ARE ISOLATED OR EMBEDDED  
NUMBER OF NODES IS 5

STEREO ATTRIBUTES: NONE

L20 SCR 2040  
L22 202779 SEA FILE=REGISTRY SSS FUL L18 AND L20  
L27 202656 SEA FILE=REGISTRY ABB=ON L22 NOT 1-3/LI  
L28 273391 SEA FILE=HCAPLUS ABB=ON L27  
L29 348 SEA FILE=HCAPLUS ABB=ON L28(L) ELECTROLYT? (L) BATTER?  
L30 102 SEA FILE=HCAPLUS ABB=ON L29(L) LITHIUM  
L31 100 SEA FILE=HCAPLUS ABB=ON L30 AND ELECTROCHEM?/SC  
L32 4 SEA FILE=HCAPLUS ABB=ON L13 AND L31  
L33 6007 SEA FILE=HCAPLUS ABB=ON L28 AND L13  
L34 346 SEA FILE=HCAPLUS ABB=ON L33 AND L14  
L35 10 SEA FILE=HCAPLUS ABB=ON L34 AND ELECTROLYT? AND BATTER?  
L36 12 SEA FILE=HCAPLUS ABB=ON L32 OR L35  
L37 1283 SEA FILE=HCAPLUS ABB=ON L33(L) ELECTROLYT?  
L40 10 SEA FILE=HCAPLUS ABB=ON L29 AND L37  
L41 5 SEA FILE=HCAPLUS ABB=ON (L36 OR L40) NOT L36

=> D L41 BIB ABS IND HITSTR 1-5

L41 ANSWER 1 OF 5 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1998:211129 HCAPLUS

DN 128:257175

TI Preparation of quaternary alkylammonium salts as electrolytes  
for batteries and electrolytic capacitors

IN Fukutome, Toshio; Kikuyama, Hirohisa

PA Hashimoto Chemical Industries Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 3 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 10087574	A2	19980407	JP 1996-261377	19960909
PRAI	JP 1996-261377		19960909		

OS MARPAT 128:257175

AB High-purity R1R2R3R4N+.X- (R1-R4 = C1-5 alkyl; X = BF4, PF6), useful as electrolytes (no data), are easily prepared by treatment of R1R2R3R4N+.X- (R1-R4 = same as above; X = Cl, Br) with LiBF4 or LiPF6 in alcs. Et4NCl was treated with LiBF4 in MeOH for 30 min and the reaction mixture was filtered to give 70% Et4NBF4 with 99.9% purity.

IC ICM C07C211-63

ICS C07F005-02

CC 23-4 (Aliphatic Compounds)

Section cross-reference(s): 52, 76

ST quaternary alkylammonium fluoroborate fluorophosphate prepn electrolyte; chloride bromide quaternary alkylammonium salt exchange; ethylammonium chloride reaction methanol solvent; alc solvent lithium tetrafluoroborate hexafluorophosphate reaction

IT Solvents

(alcs.; preparation of quaternary alkylammonium salts as electrolytes for batteries and electrolytic capacitors)

IT Electrolytes

**Electrolytic capacitors****Secondary batteries**

(preparation of quaternary alkylammonium salts as electrolytes for batteries and electrolytic capacitors)

**IT Alcohols, uses**

RL: NUU (Other use, unclassified); USES (Uses)

(solvents; preparation of quaternary alkylammonium salts as electrolytes for batteries and electrolytic capacitors)

**IT Quaternary ammonium compounds, reactions**

RL: RCT (Reactant); RACT (Reactant or reagent)

(tetraalkyl, bromides; preparation of quaternary alkylammonium salts as electrolytes for batteries and electrolytic capacitors)

**IT Quaternary ammonium compounds, reactions**

RL: RCT (Reactant); RACT (Reactant or reagent)

(tetraalkyl, halides, chlorides; preparation of quaternary alkylammonium salts as electrolytes for batteries and electrolytic capacitors)

**IT Quaternary ammonium compounds, preparation**

RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP

(Preparation)

(tetraalkyl; preparation of quaternary alkylammonium salts as electrolytes for batteries and electrolytic capacitors)

**IT 429-06-1P, Tetraethylammonium tetrafluoroborate 429-07-2P**

, Tetraethylammonium hexafluorophosphate 3109-63-5P,

Tetrabutylammonium hexafluorophosphate

RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP

(Preparation)

(preparation of quaternary alkylammonium salts as electrolytes for batteries and electrolytic capacitors)

**IT 56-34-8, Tetraethylammonium chloride 1643-19-2,**

Tetrabutylammonium bromide

RL: RCT (Reactant); RACT (Reactant or reagent)

(preparation of quaternary alkylammonium salts as electrolytes for batteries and electrolytic capacitors)

**IT 64-17-5, Ethanol, uses 67-56-1, Methanol, uses**

RL: NUU (Other use, unclassified); USES (Uses)

(solvent; preparation of quaternary alkylammonium salts as electrolytes for batteries and electrolytic capacitors)

**IT 429-06-1P, Tetraethylammonium tetrafluoroborate 429-07-2P**

, Tetraethylammonium hexafluorophosphate 3109-63-5P,

Tetrabutylammonium hexafluorophosphate

RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP

(Preparation)

(preparation of quaternary alkylammonium salts as electrolytes for batteries and electrolytic capacitors)

**RN 429-06-1 HCAPLUS**

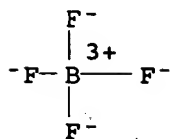
CN Ethanaminium, N,N,N-triethyl-, tetrafluoroborate(1-) (9CI) (CA INDEX NAME)

CM 1

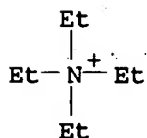
CRN 14874-70-5

CMF B F4

CCI CCS



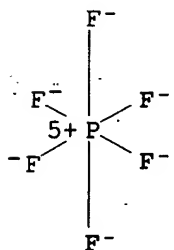
CM 2

CRN 66-40-0  
CMF C8 H20 N

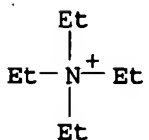
RN 429-07-2 HCAPLUS

CN Ethanaminium, N,N,N-triethyl-, hexafluorophosphate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 16919-18-9  
CMF F6 P  
CCI CCS

CM 2

CRN 66-40-0  
CMF C8 H20 N

RN 3109-63-5 HCAPLUS

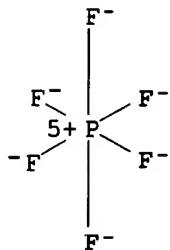
CN 1-Butanaminium, N,N,N-tributyl-, hexafluorophosphate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 16919-18-9

CMF F6 P

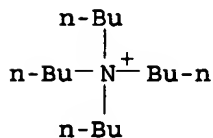
CCI CCS



CM 2

CRN 10549-76-5

CMF C16 H36 N



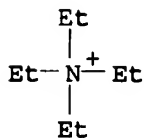
IT 56-34-8, Tetraethylammonium chloride 1643-19-2,  
Tetrabutylammonium bromide

RL: RCT (Reactant); RACT (Reactant or reagent)

(preparation of quaternary alkylammonium salts as electrolytes for  
batteries and electrolytic capacitors)

RN 56-34-8 HCAPLUS

CN Ethanaminium, N,N,N-triethyl-, chloride (9CI) (CA INDEX NAME)

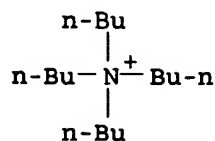


● Cl<sup>-</sup>

RN 1643-19-2 HCAPLUS

CN 1-Butanaminium, N,N,N-tributyl-, bromide (9CI) (CA INDEX NAME)



● Br<sup>-</sup>

L41 ANSWER 2 OF 5 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1997:609681 HCAPLUS

DN 127:309479

TI Solid polymer electrolyte, battery and solid-state electric double-layer capacitor using this electrolyte as well as processes for manufacture of these devices

IN Takeuchi, Masataka; Tokita, Koji; Ueda, Miyuki; Noguchi, Jun; Yashima, Hideo; Tamura, Eri; Ooga, Kazuhiko

PA Showa Denko K. K., Japan

SO U.S., 41 pp., Cont.-in-part of U.S. 5,597,661.

CODEN: USXXAM

DT Patent

LA English

FAN.CNT 6

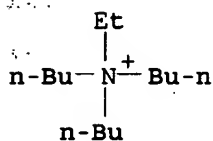
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5665490	A	19970909	US 1995-478760	19950607
	JP 06187822	A2	19940708	JP 1993-133620	19930603
	JP 08111220	A2	19960430	JP 1994-274369	19941013
	JP 3127190	B2	20010122		
	US 5874184	A	19990223	US 1997-892849	19970711
PRAI	JP 1993-133620	A	19930603		
	JP 1993-323192	A	19931129		
	JP 1993-323193	A	19931129		
	JP 1994-60067	A	19940304		
	JP 1994-133839	A	19940524		
	JP 1994-218260	A	19940818		
	JP 1994-274369	A	19941013		
	US 1994-343603	A2	19941130		
	JP 1995-56514	A	19950221		
	JP 1992-286325	A1	19921023		
	US 1995-478760	A1	19950607		

AB A solid polymer electrolyte comprises a composite of a polymeric component and  $\geq 1$  electrolyte salt, which has a high ionic conductivity and can be made into a thin film. The polymeric component comprises  $\geq 1$  member selected from a polymer obtained from  $\geq 1$  compound having alc. OH groups, where  $\geq 1$  H atom of the alc. OH groups is replaced by  $\text{CH}_2\text{C(R)C(O)}[\text{O}(\text{CH}_2)_p(\text{CH}(\text{Me}))_q]_r\text{NHC(O)OR1}$  (I); and a copolymer comprising  $\geq 1$  of the compds. as a co-monomer. R represents a H or Me group, R1 represents a divalent organic group containing  $\geq 1$  oxyalkylene group and the organic group may be linear, branched, or cyclic and may contain 1 or more atoms other than C, H, or O; p and q each represents 0 or an integer of 1-5; r represents 0 or an integer of 1-10, provided that  $r = 0$  when p and q are 0. The subunit  $[\text{O}(\text{CH}_2)_p(\text{CH}(\text{Me}))_q]_r$  may comprise substituents  $(\text{CH}_2)$  and  $(\text{CH}(\text{Me}))$  in various arrangements, provided that each R, R1, p, q, and r of each of the unit of I are as defined above and each unit may be the same or different.

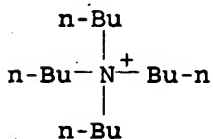
IC ICM H01M006-18  
INCL 429192000  
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
Section cross-reference(s): 37, 76  
ST polymer battery electrolyte; capacitor double layer polymer electrolyte  
IT Battery electrodes  
(composite electrolyte-containing)  
IT Battery electrolytes  
(electrolyte salt- and polymeric component-containing)  
IT Capacitors  
(electrolyte salt- and polymeric component-containing electrolytes for)  
IT Carbon fibers, uses  
RL: DEV (Device component use); PNU (Preparation, unclassified); PREP (Preparation); USES (Uses)  
(graphite; battery anode containing composite polymer electrolyte)  
IT 12190-79-3P, Cobalt lithium oxide (CoLiO2) 25233-30-1P, Polyaniline 99742-70-8P, Poly-o-anisidine  
RL: DEV (Device component use); PNU (Preparation, unclassified); PREP (Preparation); USES (Uses)  
(battery cathode containing composite polymer electrolyte)  
IT 4474-60-6DP, Methacryloyl isocyanate, reaction products with glycerol-ethylene oxide-propylene oxide polymer 161518-46-3DP, lithium complexes 196618-21-0DP, lithium complexes 196965-50-1DP, lithium complexes  
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); USES (Uses)  
(electrolytes for batteries and double-layer capacitors)  
IT 7439-93-2DP, Lithium, polymer complexes, uses 7440-22-4DP, Silver, polymer complexes, uses 7440-23-5DP, Sodium, polymer complexes, uses 16208-32-5DP, polymer complexes  
RL: DEV (Device component use); PNU (Preparation, unclassified); PRP (Properties); PREP (Preparation); USES (Uses)  
(electrolytes for batteries and double-layer capacitors)  
IT 161518-43-0DP, lithium and sodium complexes 161518-45-2DP, lithium and sodium complexes 161518-47-4DP, lithium complexes 168398-15-0DP, lithium complexes 178490-88-5DP, lithium and sodium complexes 178490-92-1DP, lithium complexes 179562-09-5DP, lithium complexes 196618-23-2DP, metal and tetrabutylammonium complexes 196618-27-6DP, lithium complexes 196885-23-1DP, lithium complexes 196965-48-7DP, lithium and silver complexes 196965-49-8DP, lithium complexes 196965-51-2DP, lithium complexes 196965-52-3DP, lithium complexes 197251-91-5DP, lithium complexes  
RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)  
(electrolytes for batteries and double-layer capacitors)  
IT 196618-29-8P  
RL: PEP (Physical, engineering or chemical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)  
(electrolytes for batteries and double-layer capacitors)  
IT 10549-76-5DP, Tetrabutylammonium, polymer complexes  
RL: PNU (Preparation, unclassified); PRP (Properties); PREP (Preparation)  
(electrolytes for batteries and double-layer capacitors)  
IT 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate  
RL: MOA (Modifier or additive use); USES (Uses)

(in composite polymer electrolytes for batteries and double-layer capacitors)

- IT 161518-44-1DP, metal and tetrabutylammonium complexes  
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)  
 (synthesis for preparation of solid polymer electrolyte for batteries and double-layer capacitors)
- IT 9082-00-2DP, reaction products with methacryloyl isocyanate 30674-80-7P  
 56449-05-9P 58205-99-5P 118889-33-1P 133756-69-1P 145153-39-5P  
 152707-38-5P 178490-89-6P 178490-91-0P 179562-08-4P 196618-22-1P  
 196618-26-5P 196618-28-7P 196885-22-0P 196886-84-7P 196886-85-8P  
 196886-86-9P 196886-87-0P  
 RL: PEP (Physical, engineering or chemical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)  
 (synthesis for preparation of solid polymer electrolyte for batteries and double-layer capacitors)
- IT 16208-32-5DP, polymer complexes  
 RL: DEV (Device component use); PNU (Preparation, unclassified); PRP (Properties); PREP (Preparation); USES (Uses)  
 (electrolytes for batteries and double-layer capacitors)
- RN 16208-32-5 HCAPLUS  
 CN 1-Butanaminium, N,N-dibutyl-N-ethyl- (9CI) (CA INDEX NAME)



- IT 10549-76-5DP, Tetrabutylammonium, polymer complexes  
 RL: PNU (Preparation, unclassified); PRP (Properties); PREP (Preparation)  
 (electrolytes for batteries and double-layer capacitors)
- RN 10549-76-5 HCAPLUS  
 CN 1-Butanaminium, N,N,N-tributyl- (9CI) (CA INDEX NAME)



L41 ANSWER 3 OF 5 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1988:593824 HCAPLUS

DN 109:193824

TI Conducting polymer batteries

IN Kaeriyama, Kiyoji; Suda, Masao; Sato, Masaaki; Osawa, Yasuhiko; Ishikawa, Masazumi; Kawai, Mikio

PA Agency of Industrial Sciences and Technology, Japan; Nissan Motor Co., Ltd.

SO Jpn. Kokai Tokkyo Koho, 5 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

## FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 63168974	A2	19880712	JP 1987-177	19870106
PRAI	JP 1987-177		19870106		

AB The title batteries have conducting polymer cathodes having triphenylamine units, conductive polymer anodes having quinoline units, and nitrile as electrolyte solvent. Thus, when cycled at 2-mA charging, 20-min standing, and 1-mA discharging between 2.0 and 2.5 V, a battery using a poly(4,4',4"-triphenylamine) cathode, a poly[2,6-(4-phenyl)quinoline] anode, and a 0.5M Bu4NPF6/MeCN electrolyte had a mean voltage of .apprx.2.3 V, and a charge-discharge efficiency of 97%.

IC ICM H01M010-40  
ICS H01M004-60

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
Section cross-reference(s): 38

ST battery polytriphenylamine cathode; polyphenylquinoline battery anode; nitrile battery electrolyte solvent; conducting polymer battery electrode

IT Batteries, secondary  
(polyamine/polyquinoline, with nitriles as electrolyte solvents)

IT Electric conductors  
(polymeric, polyquinolines and polyamines, for battery electrodes)

IT Cathodes  
(battery, polyamines for)

IT Anodes  
(battery, polyquinolines for)

IT 59827-22-4 59827-46-2, Poly[2,6-(4-phenyl)quinoline]  
RL: USES (Uses)  
(anodes, for polymer batteries)

IT 107001-70-7  
RL: DEV (Device component use); USES (Uses)  
(cathodes, for batteries)

IT 75-05-8, Acetonitrile, uses and miscellaneous  
RL: USES (Uses)  
(electrolyte solvent, for polymer batteries)

IT 3109-63-5, Tetra-n-butylammonium hexafluorophosphate  
RL: USES (Uses)  
(electrolyte, for polymer batteries)

IT 3109-63-5, Tetra-n-butylammonium hexafluorophosphate  
RL: USES (Uses)  
(electrolyte, for polymer batteries)

RN 3109-63-5 HCAPLUS

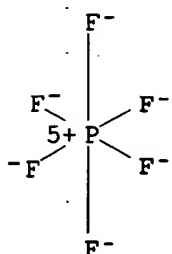
CN 1-Butanaminium, N,N,N-tributyl-, hexafluorophosphate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 16919-18-9

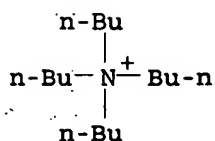
CMF F6 P

CCI CCS



CM 2

CRN 10549-76-5  
 CMF C16 H36 N



L41 ANSWER 4 OF 5 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1965:27560 HCAPLUS

DN 62:27560

OREF. 62:4914d

TI Alkaline storage battery and electrolyte

IN Ruetschi, Paul

PA Electric Storage Battery Co.

SO 2 pp.

DT Patent

LA Unavailable

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 3160526		19641208	US	19610926
PRAI	US		19610926		

AB A storage battery consists of a pos. electrode of Co oxide, a neg. electrode of Mg or Zn and an electrolyte of at least 0.5M aqueous solution of a quaternary ammonium hydroxide, such as Et<sub>4</sub>NOH. The Co oxide is prepared by impregnating a porous matrix of Co, Ni, or graphite with molten Co nitrate and immersing in an alkaline solution, as KOH, to precipitate the Co oxide. The power output in w.-hrs./lb. from the Co-Mg cell is 3-4 times that of a Ag-Zn cell.

INCL 136006000

CC 15 (Electrochemistry)

IT Storage batteries

(cobalt-Mg, with quaternary ammonium hydroxide electrolyte)

IT Anodes and(or) Positive electrodes

(stainless steel, Co oxide)

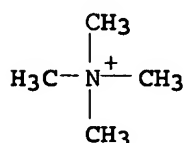
IT Cathodes and(or) Negative electrodes

(storage-battery, Mg, in quaternary ammonium hydroxide electrolyte)

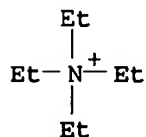
IT 11104-61-3, Cobalt oxide

(anodes, in storage battery with quaternary ammonium hydroxide

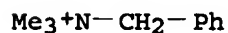
electrolyte)  
 IT 51-92-3, Ammonium, tetramethyl 66-40-0, Ammonium,  
 tetraethyl  
 (as storage battery electrolyte)  
 IT 7439-95-4, Magnesium  
 (cathodes (hollow), in storage battery with quaternary ammonium  
 hydroxide electrolyte)  
 IT 14800-24-9, Ammonium, benzyltrimethyl 35414-25-6,  
 Ammonium, tetraheptyl  
 (storage battery electrolyte)  
 IT 51-92-3, Ammonium, tetramethyl 66-40-0, Ammonium,  
 tetraethyl  
 (as storage battery electrolyte)  
 RN 51-92-3 HCAPLUS  
 CN Methanaminium, N,N,N-trimethyl- (9CI) (CA INDEX NAME)



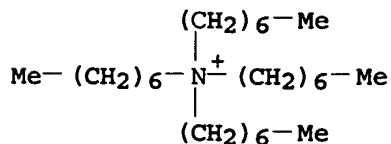
RN 66-40-0 HCAPLUS  
 CN Ethanaminium, N,N,N-triethyl- (9CI) (CA INDEX NAME)



IT 14800-24-9, Ammonium, benzyltrimethyl 35414-25-6,  
 Ammonium, tetraheptyl  
 (storage battery electrolyte)  
 RN 14800-24-9 HCAPLUS  
 CN Benzenemethanaminium, N,N,N-trimethyl- (9CI) (CA INDEX NAME)



RN 35414-25-6 HCAPLUS  
 CN 1-Heptanaminium, N,N,N-triheptyl- (9CI) (CA INDEX NAME)



L41 ANSWER 5 OF 5 HCAPLUS COPYRIGHT 2005 ACS on STN  
 AN 1962:82636 HCAPLUS  
 DN 56:82636

OREF 56:3276i,3277a

TI Alkaline storage batteries

IN Rueetschi, Paul

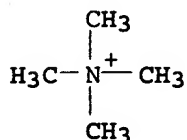
PA Electric Storage Battery Co.

DT Patent

LA Unavailable

FAN.CNT 1

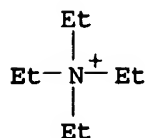
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 1101549			DE	19591030
PRAI	DE		19591030		
AB	Storage batteries with increased lifetime were made by using Co oxide, supported on porous Co, Ni, or graphite, as the pos. electrode with neg. electrode of Mg or Zn. Suitable electrolytes were aqueous solns. of tetramethyl-, tetraethyl-, tetrakis(2-hydroxyethyl)-, and methylbenzyl dimethylammonium hydroxides.				
INCL	21B				
CC	22 (Electrochemistry)				
IT	Storage batteries (alkaline)				
IT	Storage batteries (alkaline, with Mg or Zn anodes and Co cathodes)				
IT	51-92-3, Ammonium, tetramethyl (as storage battery electrolyte)				
IT	7439-95-4, Magnesium (storage batteries with Co)				
IT	7440-48-4, Cobalt (storage batteries with Mg or Zn)				
IT	7440-66-6, Zinc (storage batteries, with Co)				
IT	66-40-0, Ammonium, tetraethyl 35414-25-6, Ammonium, tetraheptyl (storage battery electrolytes from aqueous)				
IT	51-92-3, Ammonium, tetramethyl (as storage battery electrolyte)				
RN	51-92-3 HCAPLUS				
CN	Methanaminium, N,N,N-trimethyl- (9CI) (CA INDEX NAME)				



IT 66-40-0, Ammonium, tetraethyl 35414-25-6, Ammonium, tetraheptyl (storage battery electrolytes from aqueous)

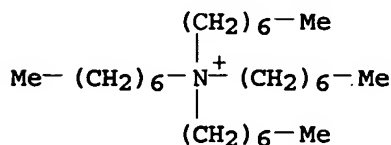
RN 66-40-0 HCAPLUS

CN Ethanaminium, N,N,N-triethyl- (9CI) (CA INDEX NAME)



RN 35414-25-6 HCAPLUS

CN 1-Heptanaminium, N,N,N-triheptyl- (9CI) (CA INDEX NAME)



=&gt; =&gt; D QUE

L2 25 SEA FILE=REGISTRY ABB=ON (10377-51-2/BI OR 10549-76-5/BI OR 110-71-4/BI OR 129318-46-3/BI OR 131651-65-5/BI OR 14024-11-4/BI OR 14283-07-9/BI OR 14797-73-0/BI OR 14874-70-5/BI OR 16919-18-9/BI OR 16973-45-8/BI OR 18424-17-4/BI OR 20256-54-6/BI OR 21324-40-3/BI OR 29935-35-1/BI OR 3109-63-5/BI OR 37181-39-8/BI OR 50653-68-4/BI OR 646-06-0/BI OR 66-40-0/BI OR 7447-41-8/BI OR 7704-34-9/BI OR 7791-03-9/BI OR 82113-65-3/BI OR 90076-65-6/BI)

L4 1 SEA FILE=REGISTRY ABB=ON L2 AND F6P/MF

L5 1 SEA FILE=REGISTRY ABB=ON L2 AND CLO4/MF

L6 1 SEA FILE=REGISTRY ABB=ON L2 AND BF4/MF

L8 1 SEA FILE=REGISTRY ABB=ON L2 AND ASF6/MF

L9 7 SEA FILE=REGISTRY ABB=ON L2 AND SULFO?

L10 5 SEA FILE=REGISTRY ABB=ON L9 NOT 1/LI

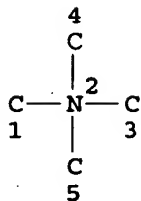
L11 4 SEA FILE=REGISTRY ABB=ON L10 NOT SULFUR

L12 4 SEA FILE=REGISTRY ABB=ON L2 AND AMINIUM

L13 6007 SEA FILE=HCAPLUS ABB=ON L12

L14 7424 SEA FILE=HCAPLUS ABB=ON L4 OR L5 OR L6 OR L8 OR L11

L18 STR



## NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

## GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 5

## STEREO ATTRIBUTES: NONE

L20 SCR 2040

L22 202779 SEA FILE=REGISTRY SSS FUL L18 AND L20

L27 202656 SEA FILE=REGISTRY ABB=ON L22 NOT 1-3/LI

L28 273391 SEA FILE=HCAPLUS ABB=ON L27

L29 348 SEA FILE=HCAPLUS ABB=ON L28 (L) ELECTROLYT? (L) BATTER?

L30 102 SEA FILE=HCAPLUS ABB=ON L29 (L) LITHIUM

L31 100 SEA FILE=HCAPLUS ABB=ON L30 AND ELECTROCHEM?/SC

L32 4 SEA FILE=HCAPLUS ABB=ON L13 AND L31

L33 6007 SEA FILE=HCAPLUS ABB=ON L28 AND L13



L34 346 SEA FILE=HCAPLUS ABB=ON L33 AND L14  
 L35 10 SEA FILE=HCAPLUS ABB=ON L34 AND ELECTROLYT? AND BATTER?  
 L36 12 SEA FILE=HCAPLUS ABB=ON L32 OR L35  
 L37 1283 SEA FILE=HCAPLUS ABB=ON L33 (L) ELECTROLYT?  
 L40 10 SEA FILE=HCAPLUS ABB=ON L29 AND L37  
 L41 5 SEA FILE=HCAPLUS ABB=ON (L36 OR L40) NOT L36  
 L42 96 SEA FILE=HCAPLUS ABB=ON L31 NOT (L41 OR L36)

=&gt; D L42 1-96 BIB ABS FHITSTR

L42 ANSWER 1 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2005:1003779 HCAPLUS

DN 143:289440

TI Electrolyte solution containing room-temperature molten salt and electrochemical device

IN Kuboki, Takashi; Horio, Satoshi; Takami, Norio

PA Toshiba Corp., Japan

SO Jpn. Kokai Tokkyo Koho, 15 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2005251510	A2	20050915	JP 2004-58864	20040303
PRAI	JP 2004-58864		20040303		

AB The claimed solution contains a salt represented as R1NR2MeCH2CO2MeX (R1 and R2 = C1-4 alkyl; R1 and R2 may form a C3-6 N-containing saturated heterocycle; X = BF4-, B(O2C-CO2)2-, PF6-, CF3SO3-, CF3(CF2)3SO3-, (CF3SO2)2N-, (CF3CF2SO2)2N-, and/or (NC)2N-). Optionally, the solution contains a salt represented as R3NR4R5R6X (R3-R6 = C1-4 alkyl; R3 and R4 may form a C3-6 N-containing saturated heterocycle). A Li battery equipped with the electrolyte solution provides long service life under low-temperature use.

IT 258273-76-6

RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)

(electrolyte solution containing quaternary ammonium room-temperature molten salt for lithium battery)

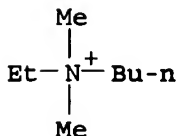
RN 258273-76-6 HCAPLUS

CN 1-Butanaminium, N-ethyl-N,N-dimethyl-, salt with 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]methanesulfonamide (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 101897-68-1

CMF C8 H20 N

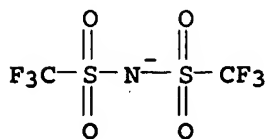


CM 2

CRN 98837-98-0

96 CA - claim / Compounds  
as electrolytes

CMF C2 F6 N O4 S2



L42 ANSWER 2 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2005:612308 HCAPLUS

DN 143:156299

TI Ionic liquid, its manufacture, and secondary lithium battery and double layer capacitor comprising the liquid

IN Matsumoto, Hajime; Zhou, Zhi-Bin

PA National Institute of Advanced Industrial Science and Technology, Japan

SO PCT Int. Appl., 25 pp.

CODEN: PIXXD2

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2005063773	A1	20050714	WO 2004-JP19323	20041224
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
	RW:	BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
PRAI	JP 2003-431700	A	20031226		
	JP 2004-19074	A	20040127		
	JP 2004-19076	A	20040127		
	JP 2004-94275	A	20040329		
	JP 2004-94293	A	20040329		
	JP 2004-285706	A	20040930		
AB	The ionic liquid comprises $\geq 1$ anion selected from the group consisting of $[\text{BF}_3(\text{CnF}_{2n+1})]^-$ ( $n = 2, 3, \text{ or } 4$ ) and $\geq 1$ organic ammonium ion. The ionic liquid is manufactured by mixing a 1st compound containing the anion as anion component with a 2nd compound containing the organic ammonium ion as cation component.				
IT	101897-62-5				
	RL: TEM (Technical or engineered material use); USES (Uses) (comps. of organic ammonium salts for electrolytes in secondary lithium batteries and double-layer capacitors)				
RN	101897-62-5 HCAPLUS				
CN	Ethanaminium, 2-methoxy-N,N,N-trimethyl-, tetrafluoroborate(1-) (9CI) (CA INDEX NAME)				
CM	1				
CRN	25728-47-6				
CMF	C6 H16 N O				

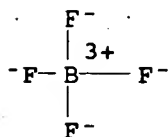
$\text{Me}_3\text{N}^+-\text{CH}_2-\text{CH}_2-\text{OMe}$ 

CM 2

CRN 14874-70-5

CMF B F4

CCI CCS



RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L42 ANSWER 3 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN  
AN 2005:606354 HCAPLUS  
DN 143:118039  
TI Air-lithium batteries comprising nonaqueous electrolytes containing polysiloxanes  
IN Kuboki, Takashi; Okuyama, Akio; Osaki, Takahisa; Takami, Norio  
PA Toshiba Corp., Japan  
SO Jpn. Kokai Tokkyo Koho, 16 pp.  
CODEN: JKXXAF

DT Patent  
LA Japanese

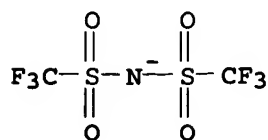
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2005190880	A2	20050714	JP 2003-432229	20031226
PRAI	JP 2003-432229		20031226		
OS	MARPAT 143:118039				
AB	The batteries comprise anodes capable of absorbing/desorbing Li+, air cathodes, and Li-salt-dissolved hydrophobic nonaq. molten salt electrolytes (molten at room temperature) containing 0.1-20 volume% of polysiloxanes R <sub>3</sub> Si(OSiR <sub>2</sub> ) <sub>n</sub> OSiR <sub>3</sub> [R = H, or (substituted) Ph, benzyl, C <sub>1-4</sub> alkyl],. The electrolytes show high resistance to vaporization and leakage.				
IT	258273-75-5 RL: DEV (Device component use); USES (Uses) (electrolyte component; air-lithium battery employing nonaq. hydrophobic molten salt electrolyte containing polysiloxane)				
RN	258273-75-5 HCAPLUS				
CN	1-Butanaminium, N,N,N-trimethyl-, salt with 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]methanesulfonamide (1:1) (9CI) (CA INDEX NAME)				

CM 1

CRN 98837-98-0

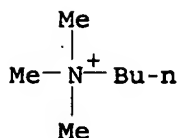
CMF C2 F6 N O4 S2



CM 2

CRN 7685-30-5

CMF C7 H18 N



L42 ANSWER 4 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2005:546300 HCAPLUS

DN 143:81073

TI Secondary nonaqueous electrolyte battery

IN Miyake, Masahide; Koga, Hideyuki; Itaya, Shoji; Dojo, Kazunori; Fujimoto, Masahisa

PA Sanyo Electric Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 22 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2005166536	A2	20050623	JP 2003-405836	20031204
	US 2005136327	A1	20050623	US 2004-999997	20041201
PRAI	JP 2003-405836	A	20031204		

AB The battery has a S-containing cathode, an anode containing a Li-intercalating material, and a nonaq. electrolyte; where the electrolyte has  $\geq 1$  1st solvent, selected from cyclic and linear ethers, and a 2nd solvent, comprising an ordinary temperature molten salt having m.p.  $\leq 60^\circ$ , at a volume ratio 0.1-40:60-99.9; and further contains lithium polysulfide in a saturated state.

IT 268536-05-6, Trimethyl propyl ammonium bis(trifluoromethyl sulfonyl) imide

RL: DEV (Device component use); USES (Uses)

(electrolytes containing ethers, ordinary temperature molten salts and lithium polysulfide for secondary lithium batteries)

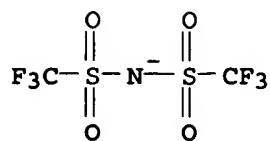
RN 268536-05-6 HCAPLUS

CN 1-Propanaminium, N,N,N-trimethyl-, salt with 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]methanesulfonamide (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 98837-98-0

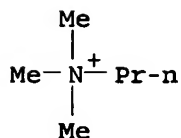
CMF C2 F6 N O4 S2



CM 2

CRN 20064-29-3

CMF C6 H16 N



L42 ANSWER 5 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2005:489759 HCAPLUS

DN 143:29446

TI Electrolyte and secondary lithium battery which uses the electrolyte

IN Hayashi, Katsuya

PA Nippon Telegraph and Telephone Corp., Japan

SO Jpn. Kokai Tokkyo Koho, 12 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2005149982	A2	20050609	JP 2003-388067	20031118
PRAI	JP 2003-388067		20031118		

AB The electrolyte contains a Li salt and a quaternary ammonium salt N+R1R2R3R4 (R1, R2, R3, and R4 = alkyl, alkoxy, or a group having carbonic acid ester structure or fatty acid ester structure; and X- = N(CF3SO2)2-, N(C2F5SO2)2-, N(CF3SO2)(C2F5SO2)- N(CF3SO2)(C3F7SO2)-, N(CF3SO2)(C4F9SO2)-, C(CF3SO2)3, CF3SO3-, and C2F5SO3-, C3F7SO3-, C4F9SO3-, BF4-, PF6-, BC4O8-, Al3Cl8-, Al2Cl7-, AlCl4-, or ClO4-) comprising a cation and an anion. The battery uses the above electrolyte.

IT 852826-75-6

RL: DEV (Device component use); USES (Uses)

(electrolytes containing lithium salts and quaternary ammonium salts for secondary lithium batteries)

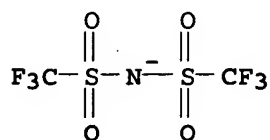
RN 852826-75-6 HCAPLUS

CN Ethanaminium, 2-methoxy-N,N,N-trimethyl-2-oxo-, salt with 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]methanesulfonamide (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 98837-98-0

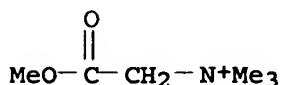
CMF C2 F6 N O4 S2



CM 2

CRN 637-94-5

CMF C6 H14 N O2



L42 ANSWER 6 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2005:409843 HCAPLUS

DN 142:466470

TI Electrolyte solution and secondary nonaqueous electrolyte lithium battery  
 IN Nishida, Tetsuo; Tomisaki, Megumi; Hirano, Kazutaka; Nabeshima, Akihiro;  
 Tokuda, Hiroaki

PA Stella Chemifa Corporation, Japan

SO PCT Int. Appl., 32 pp.

CODEN: PIXXD2

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2005043668	A1	20050512	WO 2004-JP16613	20041102
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
PRAI	JP 2003-374785	A	20031104		
GI					



AB The electrolyte solution contains a room temperature molten salt composed of an aliphatic quaternary ammonium salt I (R1-3 = C1-4 linear hydrocarbon; R4 =

methoxy Me, ethoxy Me, propoxy Me, or isopropoxy Me group; and X1 = F-containing anion), an organic solvent, and a lithium salt: LiX2 (X2 = F-containing anion); where the organic solvent contains a vinylene carbonate in an amount of 1-5% relative to the electrolyte solution The battery has a cathode, an anode, and the above electrolyte solution

IT 851663-64-4

RL: DEV (Device component use); USES (Uses)

(electrolyte solns. containing aliphatic quaternary ammonium salts, lithium fluoro-salts and vinylene carbonates with controlled amts. for secondary lithium batteries)

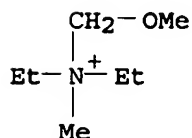
RN 851663-64-4 HCAPLUS

CN Ethanaminium, N-ethyl-N-(methoxymethyl)-N-methyl-, salt with 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]methanesulfonamide (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 851663-63-3

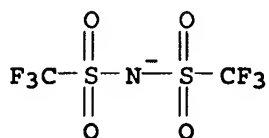
CMF C7 H18 N O



CM 2

CRN 98837-98-0

CMF C2 F6 N O4 S2



RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L42 ANSWER 7 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2005:409461 HCAPLUS

DN 142:466461

TI Quaternary ammonium salt, electrolyte salt, electrolyte solution, and electrochemical device

IN Nabeshima, Akihiro; Tokuda, Hiroaki; Nishida, Tetsuo; Tomisaki, Megumi; Hirano, Kazutaka

PA Otsuka Chemical Co., Ltd., Japan; Stella Chemifa Corporation

SO PCT Int. Appl., 42 pp.

CODEN: PIXXD2

DT Patent

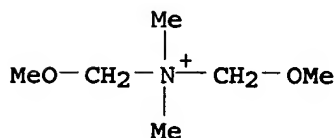
LA Japanese

FAN.CNT 1

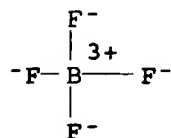
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI WO 2005042466 A1 20050512 WO 2004-JP16018 20041028  
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH,  
CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD,  
GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,  
LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI,  
NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY,  
TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW  
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM,  
AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK,  
EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE,  
SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE,  
SN, TD, TG  
PRAI JP 2003-372159 A 20031031  
OS MARPAT 142:466461  
AB The quaternary ammonium salt is represented by N+R1R2R3R4.X- (R1, R2 =  
C1-4 alkyl group; R1 and R2 may form a saturated heterocyclic ring together  
with bonded N atom; R3, R4 = Me or Et group; and X- = anion). The  
electrolyte solution comprises ≥1 electrolyte salt, containing the above  
ammonium salt, and an organic solvent. The electrochem. device, especially an  
elec. double layer capacitor or a secondary lithium battery contains the  
above electrolyte solution  
IT 851666-14-3  
RL: DEV (Device component use); USES (Uses)  
(electrolyte solns. containing quaternary ammonium salts for  
secondary lithium batteries and elec. double layer  
capacitors)  
RN 851666-14-3 HCAPLUS  
CN Methanaminium, 1-methoxy-N-(methoxymethyl)-N,N-dimethyl-,  
tetrafluoroborate(1-) (9CI) (CA INDEX NAME)  
CM 1  
CRN 62393-50-4  
CMF C6 H16 N O2



CM 2  
CRN 14874-70-5  
CMF B F4  
CCI CCS



RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT



L42 ANSWER 8 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2005:365581 HCAPLUS

DN 142:414539

TI Manufacture of anode foil for secondary lithium ion battery by plating in nonaqueous solvent

IN Sakai, Tetsuo; Uenaka, Hideya; Abe, Masaru

PA National Institute of Advanced Industrial Science and Technology, Japan

SO Jpn. Kokai Tokkyo Koho, 18 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2005116264	A2	20050428	JP 2003-347079	20031006
PRAI	JP 2003-347079		20031006		

AB The anode foil is prepared by depositing Si or Si and a Li inert metal on a foil in an organic solvent plating bath containing SiCl<sub>4</sub> and/or SiHCl<sub>3</sub> and a supporting electrolyte. Suitable solvents and supporting electrolytes are also claimed.

IT 1923-70-2, Tetrabutylammonium perchlorate

RL: NUU (Other use, unclassified); USES (Uses)

(supporting electrolytes in manufacture of anodes by plating silicon on metal foils for secondary lithium ion batteries)

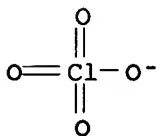
RN 1923-70-2 HCAPLUS

CN 1-Butanaminium, N,N,N-tributyl-, perchlorate (9CI) (CA INDEX NAME)

CM 1

CRN 14797-73-0

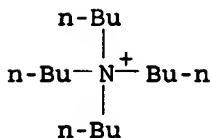
CMF C1 O4



CM 2

CRN 10549-76-5

CMF C16 H36 N



L42 ANSWER 9 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2005:260323 HCAPLUS

DN 142:339052

TI Ordinary temperature molten salt and electrochemical device  
 IN Matsumoto, Hajime  
 PA National Institute of Advanced Industrial Science and Technology, Japan  
 SO PCT Int. Appl., 15 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA Japanese  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2005027157	A2	20050324	WO 2004-JP13393	20040908
	WO 2005027157	A3	20050506		
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW,			
	RW:	BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			

PRAI JP 2003-316471 A 20030909

AB The salt comprises: a cation component obtained by introducing a cationic group into a volatile organic solvent; and an anion component selected from the group consisting of an inorg. ion, sulfonimide ion, carboxylic acid ion, mono- or polyvalent sulfonic acid ion, (optionally substituted alkyl, cycloalkyl, or aryl)4B-, (R1SO2)3C- [R1 = (substituted) alkyl, (substituted) haloalkyl, or (substituted) aryl group], and Rf-BF3- (Rf = CnF2n+1; and n = integer 1-4). The device, especially for a secondary lithium battery, contains the above salt.

IT 848467-73-2

RL: DEV (Device component use); USES (Uses)

(comps. of ordinary temperature molten salts for secondary lithium battery electrolytes)

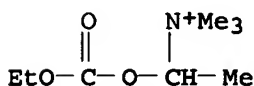
RN 848467-73-2 HCAPLUS

CN Ethanaminium, 1-[(ethoxycarbonyl)oxy]-N,N,N-trimethyl-, salt with 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]methanesulfonamide (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 848467-72-1

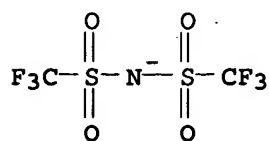
CMF C8 H18 N O3



CM 2

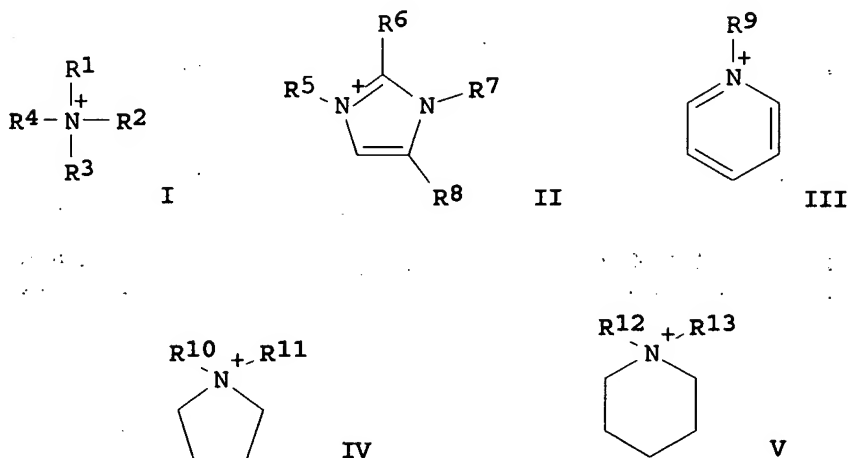
CRN 98837-98-0

CMF C2 F6 N O4 S2



L42 ANSWER 10 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN  
 AN 2005:98342 HCAPLUS  
 DN 142:180476  
 TI Secondary nonaqueous electrolyte battery  
 IN Kuboki, Takashi; Okuyama, Akio; Osaki, Takahisa; Takami, Norio  
 PA Toshiba Corp., Japan  
 SO Jpn. Kokai Tokkyo Koho, 24 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2005032551	A2	20050203	JP 2003-196033	20030711
PRAI	JP 2003-196033		20030711		
OS	MARPAT 142:180476				
GI					



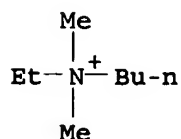
AB The battery has a molten salt containing dicyanamide anion and cation ions selected from I [R1-4 = C $\leq$ 8 (O containing) alkyl, Ph, or benzyl groups], II [R5 and R7 = C $\leq$ 8 (O containing) alkyl groups; R6 and R8 = C $\leq$ 8 (O containing) alkyl groups or H], III [R9 = C $\leq$ 8 (O containing) alkyl groups], IV [R10 and R11 = C $\leq$ 8 (O containing) alkyl, Ph, or benzyl groups], or V [R12 and R13 = C $\leq$ 8 (O containing) alkyl, Ph, or benzyl groups]. The molten salt may also contain other anions selected from BF<sub>4</sub><sup>-</sup>, PF<sub>6</sub><sup>-</sup>, B(C<sub>2</sub>O<sub>4</sub>)<sup>-</sup>, perfluorocarbon sulfonate, perfluorocarbonsulfonimide, and perfluorosulfo cyanamide ions.

IT 827033-46-5  
 RL: DEV (Device component use); USES (Uses)  
 (comps. of molten salt nonaq. electrolytes for secondary lithium batteries)

RN 827033-46-5 HCAPLUS  
 CN 1-Butanaminium, N-ethyl-N,N-dimethyl-, salt with cyanocyanamide (1:1)  
 (9CI) (CA INDEX NAME)

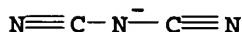
CM 1

CRN 101897-68-1  
 CMF C8 H20 N



CM 2

CRN 17997-40-9  
 CMF C2 N3



L42 ANSWER 11 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN  
 AN 2005:75853 HCAPLUS  
 DN 142:138394  
 TI Nonaqueous-electrolyte lithium/oxygen air batteries  
 IN Kuboki, Takashi; Okuyama, Akio; Osaki, Takahisa; Takami, Norio  
 PA Toshiba Corp., Japan  
 SO Jpn. Kokai Tokkyo Koho, 27 pp.  
 CODEN: JKXXAF

DT Patent  
 LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2005026023	A2	20050127	JP 2003-188878	20030630
PRAI	JP 2003-188878		20030630		
OS	MARPAT 142:138394				

AB The batteries comprise oxygen cathodes, Li-absorbing and -desorbing anodes, and nonaq. electrolytes containing molten salts, wherein the molten salts comprise [N(CN)2]- as anodes. Preferably, the molten salts are quaternary ammonium salts. The batteries show excellent large-current-discharge characteristics and provide high discharge even after high-temperature storage.

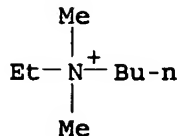
IT 827033-46-5, N-Ethyl-N,N-dimethylbutylammonium dicyanamide  
 RL: DEV (Device component use); USES (Uses)  
 (electrolytes; nonaq.-electrolyte lithium  
 /oxygen air batteries containing dicyanamide salts in  
 electrolytes)

RN 827033-46-5 HCAPLUS  
 CN 1-Butanaminium, N-ethyl-N,N-dimethyl-, salt with cyanocyanamide (1:1)  
 (9CI) (CA INDEX NAME)

CM 1

CRN 101897-68-1

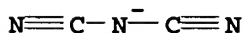
CMF C8 H20 N



CM 2

CRN 17997-40-9

CMF C2 N3



L42 ANSWER 12 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2005:29321 HCAPLUS

DN 142:117653

TI Quaternary ammonium salt, electrolyte solution, and electrochemical device

IN Nishida, Tetsuo; Tashiro, Yasutaka; Tomisaki, Megumi; Yamamoto, Masashi;  
Hirano, Kazutaka; Nabeshima, Akihiro; Tokuda, Hiroaki; Sato, Kenji;  
Higono, Takashi

PA Otsuka Chemical Co., Ltd., Japan; Stella Chemifa Corporation

SO PCT Int. Appl., 122 pp.

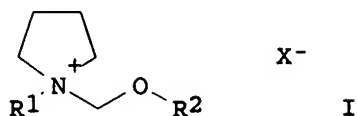
CODEN: PIXXD2

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2005003108	A1	20050113	WO 2004-JP9623	20040630
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	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH,				
	CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD,				
	GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,				
	LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI,				
	NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY,				
	TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM,				
	AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK,				
	EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE,				
	SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE,				
	SN, TD, TG				
PRAI	JP 2003-270225	A	20030701		
OS	MARPAT 142:117653				
GI					



AB The ammonium salt is represented by I (R1 = C1-4 alkyl group; R2 = Me or Et group; and X- = F-containing anion) II (R1 and R2 are same as I ; Y- = Cl-, Br-, I-, or MeOCO2-), or III (R1 and R2 are same as I; Z- = 1/2 CO32-, HCO3-, 1/2SO42-, ClO4-, CH3CO2-, or OH-). The electrolyte solution contains the above ammonium salt and an organic solvent mixture. The device, especially a secondary lithium battery or an elec. double layer capacitor, uses the above electrolyte solution.

IT 464927-72-8

RL: TEM (Technical or engineered material use); USES (Uses)  
(electrolyte solns. containing quaternary ammonium salts and organic solvents for secondary lithium batteries and capacitors)

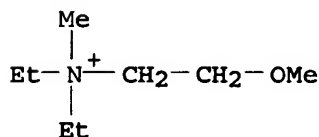
RN 464927-72-8 HCAPLUS

CN Ethanaminium, N,N-diethyl-2-methoxy-N-methyl-, tetrafluoroborate(1-) (9CI)  
(CA INDEX NAME)

CM 1

CRN 464927-71-7

CMF C8 H20 N O

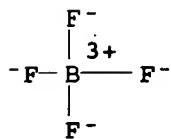


CM 2

CRN 14874-70-5

CMF B F4

CCI CCS



RE.CNT 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L42 ANSWER 13 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2004:1038567 HCAPLUS

DN 142:25894

TI Nonaqueous electrolyte solution for secondary lithium battery, its manufacture, and the battery

IN Hinohara, Akio; Hayashi, Takeshi  
 PA Mitsui Chemicals Inc., Japan  
 SO Jpn. Kokai Tokkyo Koho, 21 pp.  
 CODEN: JKXXAF

DT Patent  
 LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2004342607	A2	20041202	JP 2004-125840	20040421
	CN 1540793	A	20041027	CN 2004-10034171	20040423
PRAI	JP 2003-122309	A	20030425		

AB The electrolyte solution contains a Li salt and a nonaq. solvent mixture and is added with 0.1-10 weight% silyl ester compound and  $\geq 0.01$  weight% tetrafluoroborate salt. The electrolyte solution is manufactured by adding a silyl ester compound and a tetrafluoroborate salt to a nonaq. electrolyte solution, containing a Li salt and a nonaq. solvent mixture. The battery has a Li-intercalating anode, a cathode, and the above electrolyte solution.

IT 429-06-1, Tetraethyl ammonium tetrafluoroborate

RL: MOA (Modifier or additive use); USES (Uses)

(comps. and manufacture of electrolyte solns. containing silyl ester compds. and tetrafluoroborate salts for secondary lithium batteries)

RN 429-06-1 HCAPLUS

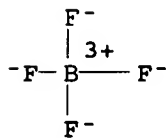
CN Ethanaminium, N,N,N-triethyl-, tetrafluoroborate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 14874-70-5

CMF B F4

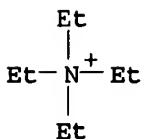
CCI CCS



CM 2

CRN 66-40-0

CMF C8 H20 N



L42 ANSWER 14 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2004:910320 HCAPLUS

DN 142:159305

TI The preparation of quaternary ammonium-based ionic liquid containing a

cyano group and its properties in a lithium battery electrolyte

AU Egashira, Minato; Okada, Shigeto; Yamaki, Jun-Ichi; Dri, Diego Alejandro; Bonadies, Francesco; Scrosati, Bruno

CS Institute for Materials Chemistry and Engineering, Kyushu University, 6-1 Kasuga-Koen, Kasuga, Fukuoka, 816-8580, Japan

SO Journal of Power Sources (2004), 138(1-2), 240-244  
CODEN: JPSODZ; ISSN: 0378-7753

PB Elsevier B.V.

DT Journal

LA English

AB A room-temperature ionic liquid, consisting of N,N,N,N-cyanomethyl tri-Me NH<sub>4</sub><sup>+</sup> (CTMA) cation and bis(trifluoromethane sulfone)imide (TFSI) anion, was synthesized and its electrochem. properties were studied. This ionic liquid has a m.p. of 35° and a conductivity of  $\approx 10^{-4}$  S/cm. Li deposition/dissoln. tests in 0.2M LiTFSI/CTMATFSI electrolytes showed improved cycle behavior compared with that of a Li electrolyte based on a tetraalkylammonium ionic liquid without a cyano group. The improvement may be associated with the formation of a protective film on the Li surface. Introducing a proper functional group is effective to improve the interfacial properties of the ionic liquid

IT 258273-75-5  
RL: DEV (Device component use); USES (Uses)  
(quaternary ammonium-based ionic liquid with cyano group for electrolytes of lithium batteries)

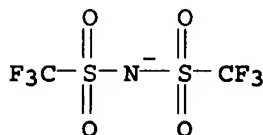
RN 258273-75-5 HCAPLUS

CN 1-Butanaminium, N,N,N-trimethyl-, salt with 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]methanesulfonamide (1:1) (9CI) (CA INDEX NAME)

CM 1

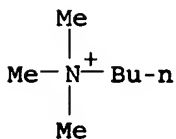
CRN 98837-98-0

CMF C2 F6 N 04 S2



CM 2

CRN 7685-30-5  
CMF C7 H18 N



RE.CNT 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L42 ANSWER 15 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN  
AN 2004:857824 HCAPLUS



DN 141:352740  
 TI Surfactant-treated lithium battery electrodes for improved solid electrolyte interface during cycling  
 IN Morris, Robert Scott; Dixon, Brian Gilbert  
 PA Phoenix Innovations, Inc., USA  
 SO PCT Int. Appl., 21 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA English  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2004088769	A2	20041014	WO 2004-US3750	20040209
	WO 2004088769	A3	20050203		
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
	RW:	BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
	EP 1597783	A2	20051123	EP 2004-709487	20040209
	R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK			
PRAI	US 2003-447500P	P	20030219		
	WO 2004-US3750	W	20040209		
AB	Novel lithium batteries with improved interfacial contact and decreased impedance between the electrolyte and the electrodes, resulting in improved safety (especially to prevent overcharging during cycling) are characterized by having one or both surfactant-modified electrodes, a porous separator, and an electrolyte. The anode is especially a carbon anode (e.g., graphite, mesocarbon microbeads, buckyballs, and multiwall and single-walled carbon nanotubes) that is coated with a fluorinated, nonionic, or cationic surfactant; the cathode is especially a lithium metal oxide (e.g., LiNiCoO <sub>2</sub> , LiCoO <sub>2</sub> , LiNO <sub>2</sub> , and LiMnO <sub>2</sub> ) coated with a fluorinated, dimeric, cationic, or nonionic surfactant. All the surfactants have an incorporated reactive end group of various reactive functionality (e.g., vinyl, allyl, acrylate, propargyl, diene, polyene, etc). The electrolytes include nonaq. organic electrolytes and can incorporate added lithium salts.				
IT	57-09-0, Cetyltrimethylammonium bromide RL: DEV (Device component use); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses) (surfactants; surfactant-treated lithium battery electrodes for improved solid electrolyte interface during cycling)				
RN	57-09-0 HCAPLUS				
CN	1-Hexadecanaminium, N,N,N-trimethyl-, bromide (9CI) (CA INDEX NAME)				

$\text{Me}_3\text{N}^-(\text{CH}_2)_{15}\text{Me}$ 
● Br<sup>-</sup>

L42 ANSWER 16 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2004:842744 HCAPLUS

DN 141:352708

TI Lithium ion-conductive gel electrolyte

IN Watanabe, Takeshi; Matsuyama, Mutsuhiro

PA Sumitomo Bakelite Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 10 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004288470	A2	20041014	JP 2003-78919	20030320

PI JP 2004288470 A2 20041014 JP 2003-78919 20030320

PRAI JP 2003-78919 20030320

AB The electrolyte, especially for a secondary lithium battery, comprises a polymer, a Li salt, and a nonaq. solvent mixture; where the polymer is obtained by polymerizing a salt monomer as a necessary component, having an ion binding site and a long-chain alkyl group.

IT 775306-03-1

RL: DEV (Device component use); USES (Uses)

(gel electrolyte solns. having ion binding site and

long-chain alkyl group containing polymers for secondary lithium batteries)

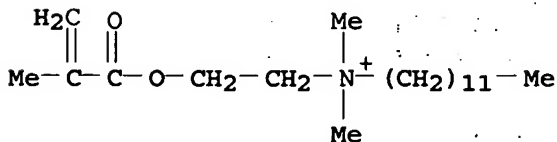
RN 775306-03-1 HCAPLUS

CN 1-Dodecanaminium, N,N-dimethyl-N-[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethyl]-; chloride, polymer with 2-methyl-2-[(1-oxo-2-propenyl)amino]-1-propanesulfonic acid and oxydi-2,1-ethanediyl di-2-propenoate (9CI) (CA INDEX NAME)

CM 1

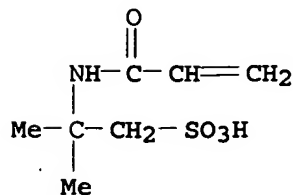
CRN 155662-75-2

CMF C20 H40 N O2 . Cl

● Cl<sup>-</sup>

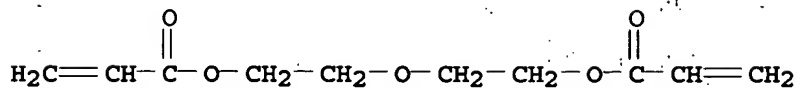
CM 2

CRN 15214-89-8  
CMF C7 H13 N O4 S



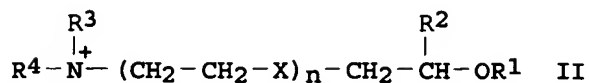
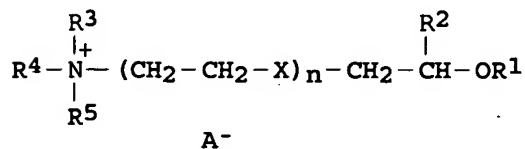
CM 3

CRN 4074-88-8  
CMF C10 H14 O5



L42 ANSWER 17 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN  
AN 2004:778928 HCAPLUS  
DN 141:298676  
TI Quaternary ammonium ordinary temperature molten salt and its manufacture  
IN Horie, Haruyuki; Yoshimura, Hiroyuki  
PA Tosoh Corp., Japan  
SO Jpn. Kokai Tokkyo Koho, 13 pp.  
CODEN: JKXXAF  
DT Patent  
LA Japanese  
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	---	-----	-----	-----
PI	JP 2004262897	A2	20040924	JP 2003-57303	20030304
PRAI	JP 2003-57303		20030304		
GI					



AB The title salt of I (R1 = H, Me, or Et group; R3-5 = C1-4 alkyl group; X = O, NR6, or S; R6 = H, Me, or Et; n = integer 1-3; A = anion), useful as an electrolyte for a secondary lithium battery or a double-layer capacitor, is manufactured by reacting a tertiary amine compound II (R1-2 = H, Me, or Et group; R3-4 = C1-4 alkyl group; X = O, NR6, or S; R6 = H, Me or Et group; n = integer 1-3) with a dialkyl carbonate salt to obtain a quaternary alkyl carbonate salt and exchanging the anion.

IT 743436-74-0P

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(manufacture of quaternary ammonium salts as electrolytes for double-layer capacitors or secondary lithium batteries by quaternization of tertiary amines with dialkyl carbonates)

RN 743436-74-0 HCAPLUS

CN Ethanaminium, 2-(2-methoxyethoxy)-N,N,N-trimethyl-, salt with 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]methanesulfonamide (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 422555-64-4

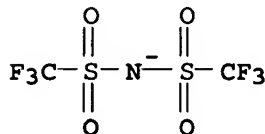
CMF C8 H20 N O2

$\text{Me}_3\text{N}^+\text{CH}_2\text{CH}_2\text{OCH}_2\text{CH}_2\text{OMe}$

CM 2

CRN 98837-98-0

CMF C2 F6 N O4 S2



L42 ANSWER 18 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2004:778927 HCAPLUS

DN 141:298675

TI Quaternary ammonium ordinary temperature molten salt and its manufacture

IN Horie, Haruyuki; Yoshimura, Hiroyuki

PA Tosoh Corp., Japan

SO Jpn. Kokai Tokkyo Koho, 10 pp.

CODEN: JKXXAF

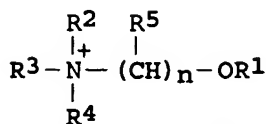
DT Patent

LA Japanese

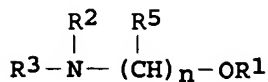
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2004262896	A2	20040924	JP 2003-57302	20030304
PRAI	JP 2003-57302		20030304		

GI

A<sup>-</sup>

I



II

AB The title salt of I (R<sup>1</sup> = H, Me, or Et group; R<sup>2</sup>-4 = C1-4 alkyl group; R<sup>5</sup> = H or Me group; n = 5 or 6; A = anion), useful as an electrolyte for a secondary lithium battery or a double-layer capacitor, is manufactured by reacting a tertiary amine compound II (R<sup>1</sup> = H, Me, or Et group; R<sup>2</sup>-3 = C1-4 alkyl group; R<sup>5</sup> = H or Me group; n = 5 or 6; A = anion) with a dialkyl carbonate salt to obtain a quaternary alkyl carbonate salt and exchanging the anion.

IT 763114-80-3P

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(manufacture of quaternary ammonium salts as electrolytes for double-layer capacitors or secondary lithium batteries by quaternization of tertiary amines with dialkyl carbonates)

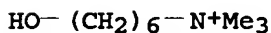
RN 763114-80-3 HCAPLUS

CN 1-Hexanaminium, 6-hydroxy-N,N,N-trimethyl-, tetrafluoroborate(1-) (9CI)  
(CA INDEX NAME)

CM 1

CRN 24004-14-6

CMF C9 H22 N O

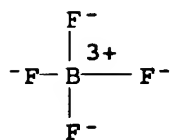


CM 2

CRN 14874-70-5

CMF B F4

CCI CCS



L42 ANSWER 19 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2004:717906 HCAPLUS

DN 141:228117

TI Electrolyte solution having Al passive film forming ability and secondary lithium battery

IN Kikuyama, Hirohisa; Waki, Masahide; Izumi, Hiroto; Nishida, Tetsuro;  
Tashiro, Yasutaka; Yamamoto, Masashi  
PA Stella Chemipha Corporation, Japan  
SO Jpn. Kokai Tokkyo Koho, 8 pp.  
CODEN: JKXXAF

DT Patent  
LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2004247176	A2	20040902	JP 2003-35774	20030213
PRAI	JP 2003-35774		20030213		

AB The electrolyte solution contains  $\geq 1$  aliphatic quaternary ammonium salt: NR1R2R3R4X1 (R1-4 = C1-8 hydrocarbon and may contains ether group or C1-8 perfluoroalkyl and may contains ether group; R1-4 may bond to each other to form a ring; and X1 = F containing anion) and  $\geq 1$  Li salt: LiX2 (X2 = F containing anion). The battery uses the above electrolyte solution

IT 101897-64-7

RL: TEM (Technical or engineered material use); USES (Uses)  
(electrolyte solution containing aliphatic quaternary ammonium salts and lithium salts for secondary lithium batteries)

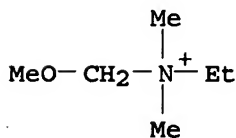
RN 101897-64-7 HCAPLUS

CN Ethanaminium, N-(methoxymethyl)-N,N-dimethyl-, tetrafluoroborate(1-) (9CI)  
(CA INDEX NAME)

CM 1

CRN 97291-97-9

CMF C6 H16 N O

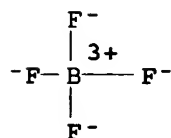


CM 2

CRN 14874-70-5

CMF B F4

CCI CCS



L42 ANSWER 20 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

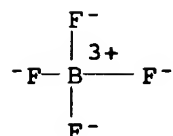
AN 2004:494071 HCAPLUS

DN 141:40723

TI Nonaqueous electrolyte solution and secondary nonaqueous electrolyte battery

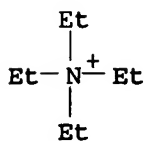
IN Nakagawa, Hiroe; Nukada, Toshiyuki; Fujimoto, Yuki  
 PA Yuasa Corporation, Japan  
 SO PCT Int. Appl., 36 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA Japanese  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2004051784	A1	20040617	WO 2003-JP14896	20031121
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
PRAI	JP 2002-346688	A	20021129		
AB	The electrolyte solution, having a Li salt dissolved in an organic solvent mixture, contains a quaternary ammonium salt. The battery has a cathode, an anode, and the above electrolyte solution				
IT	429-06-1, Tetraethyl ammonium tetrafluoroborate RL: MOA (Modifier or additive use); USES (Uses) (electrolyte solns. containing quaternary ammonium salts for secondary lithium batteries)				
RN	429-06-1 HCAPLUS				
CN	Ethanaminium, N,N,N-triethyl-, tetrafluoroborate(1-) (9CI) (CA INDEX NAME)				
CM	1				
CRN	14874-70-5				
CMF	B F4				
CCI	CCS				



CM 2

CRN 66-40-0  
 CMF C8 H20 N



RE.CNT 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L42 ANSWER 21 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2004:180576 HCAPLUS

DN 140:202474

TI Nonaqueous electrolyte solution and secondary nonaqueous electrolyte battery

IN Akiyama, Tomoo; Hashimoto, Tsutomu; Yamaki, Junichi

PA Mitsubishi Heavy Industries, Ltd., Japan; Kyushu University

SO Jpn. Kokai Tokkyo Koho, 12 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2004071340	A2	20040304	JP 2002-228740	20020806
PRAI	JP 2002-228740		20020806		

AB The battery has a cathode, an anode, and a nonaq. electrolyte solution; where the battery also contains a quaternary ammonium salt. The electrolyte solution contains at least a quaternary ammonium salt.

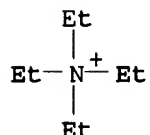
IT 56-34-8, Tetraethyl ammonium chloride

RL: DEV (Device component use); USES (Uses)

(electrolyte solns. containing quaternary ammonium salts for secondary lithium batteries)

RN 56-34-8 HCAPLUS

CN Ethanaminium, N,N,N-triethyl-, chloride (9CI) (CA INDEX NAME)



● Cl<sup>-</sup>

L42 ANSWER 22 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2004:78024 HCAPLUS

DN 140:131119

TI Secondary nonaqueous electrolyte battery

IN Suzuki, Hitoshi; Takeuchi, Sachie; Suzuki, Hirofumi

PA Mitsubishi Chemical Corp., Japan

SO Jpn. Kokai Tokkyo Koho, 12 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2004031079	A2	20040129	JP 2002-184780	20020625
PRAI	JP 2002-184780		20020625		

AB The battery has an anode, containing a material capable of intercalating and decalating Li, a cathode, and a nonaq. electrolyte solution, containing a nonaq. solvent mixture and a Li salt; where the electrolyte solution contains a



difluorophosphate salt  $M(PO_2F_2)_x$  [M = metal having M-F bond dissociation energy  $\leq 560$  kJ/mol or  $NR_4$  (R = H or C1-12 organic group and may be bonded to each other directly or via N to form a ring); If M = metal, x = valence  $\geq 1$ ; If M =  $NR_4$ , x = 1].

IT 665-47-4

RL: MOA (Modifier or additive use); USES (Uses)  
(electrolyte solns. containing difluorophosphate salts for secondary lithium batteries)

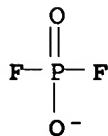
RN 665-47-4 HCAPLUS

CN Ethanaminium, N,N,N-triethyl-, phosphorodifluoridate (9CI) (CA INDEX NAME)

CM 1

CRN 20410-46-2

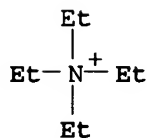
CMF F2 O2 P



CM 2

CRN 66-40-0

CMF C8 H20 N



L42 ANSWER 23 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2003:949933 HCAPLUS

DN 140:18390

TI Secondary lithium batteries with high discharge capacity and long cycle life

IN Kawashima, Atsumichi

PA Sony Corp., Japan

SO Jpn. Kokai Tokkyo Koho, 11 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2003346897	A2	20031205	JP 2002-157996	20020530
PRAI	JP 2002-157996		20020530		

AB The batteries contain inner salts in electrolytes. The inner salts transport Li ions by forming complexes and prevent degradation of solvents.

IT 107-43-7

RL: DEV (Device component use); MOA (Modifier or additive use); USES

(Uses)

(electrolyte; secondary lithium batteries  
containing inner salts in electrolytes with high discharge  
capacity and long cycle life)

RN 107-43-7 HCAPLUS

CN Methanaminium, 1-carboxy-N,N,N-trimethyl-, inner salt (9CI) (CA INDEX NAME)

 $\text{Me}_3^+\text{N}-\text{CH}_2-\text{CO}_2^-$ 

L42 ANSWER 24 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2003:715907 HCAPLUS

DN 139:248004

TI Electrolyte composition and nonaqueous electrolyte secondary battery

IN Wariishi, Koji

PA Fuji Photo Film Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 18 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2003257487	A2	20030912	JP 2002-52146	20020227
PRAI	JP 2002-52146		20020227		

OS MARPAT 139:248004

AB The electrolyte composition comprises a salt represented by  
(M)n<sub>1</sub>[R<sub>1</sub>-L<sub>1</sub>-X(L<sub>2</sub>-R<sub>2</sub>)n<sub>2</sub>]n<sub>3</sub> (M = organic or inorg. cation; R<sub>1,2</sub> = H,  
substituent; L<sub>1,2</sub> = divalent bonding group, single bond; X = atom having  
neg. charge; n<sub>1</sub> = integer; n<sub>2</sub> = integer 0-2; and n<sub>3</sub> = integer 1-3) and a  
salt of a Group Ia or Group IIa element. The electrolyte composition exhibited  
excellent charge transporting property when it is used for a nonaq.  
lithium secondary battery.

IT 597542-50-2

RL: TEM (Technical or engineered material use); USES (Uses)

(electrolyte; electrolyte composition for nonaq.

electrolyte lithium secondary battery)

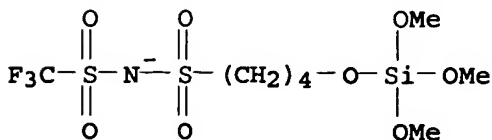
RN 597542-50-2 HCAPLUS

CN 1-Propanaminium, N,N,N-trimethyl-, salt with silicic acid (H<sub>4</sub>SiO<sub>4</sub>)  
trimethyl 4-[[[(trifluoromethyl)sulfonyl]amino]sulfonyl]butyl ester (1:1)  
(9CI) (CA INDEX NAME)

CM 1

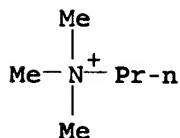
CRN 597542-49-9

CMF C8 H17 F3 N O8 S2 Si



CM 2

CRN 20064-29-3  
CMF C6 H16 N



L42 ANSWER 25 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2003:715900 HCAPLUS

DN 139:248000

TI Electrolytic composition containing siloxane polymer and nonaqueous secondary battery

IN Wariishi, Koji; Ono, Michio

PA Fuji Photo Film Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 21 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2003257480	A2	20030912	JP 2002-51865	20020227
	US 2003198870	A1	20031023	US 2003-374075	20030227
PRAI	JP 2002-51865	A	20020227		

AB The electrolytic composition comprises a Si polymer, an inorg. microparticle, and a metal ion salt from Group I or Group II element. The electrolytic composition exhibited excellent transport property when it is used for a Li secondary battery.

IT 597542-24-0

RL: TEM (Technical or engineered material use); USES (Uses)  
(electrolytic composition containing siloxane polymer for nonaq. lithium secondary battery)

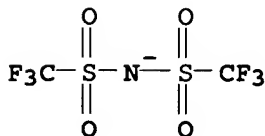
RN 597542-24-0 HCAPLUS

CN Silicic acid, methyl 2-(trimethylammonio)ethyl ester, salt with 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]methanesulfonamide (9CI) (CA INDEX NAME)

CM 1

CRN 98837-98-0

CMF C2 F6 N O4 S2



CM 2

CRN 597542-23-9

CMF C5 H14 N O . x C H4 O . x Unspecified

CM 3

CRN 1343-98-2  
CMF Unspecified  
CCI MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 4

CRN 67-56-1  
CMF C H4 O $\text{H}_3\text{C}-\text{OH}$ 

CM 5

CRN 62-49-7  
CMF C5 H14 N O $\text{Me}_3\text{N}-\text{CH}_2-\text{CH}_2-\text{OH}$ 

L42 ANSWER 26 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2003:511642 HCAPLUS

DN 139:55551

TI Secondary nonaqueous electrolyte battery

IN Miyake, Masahide; Fujimoto, Masahisa; Koga, Hideyuki; Tarui, Hisaki;  
Fujitani, Shin

PA Sanyo Electric Co., Ltd., Japan

SO PCT Int. Appl., 82 pp.

CODEN: PIXXD2

DT Patent

LA Japanese

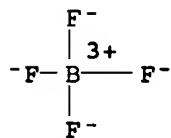
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2003054986	A1	20030703	WO 2002-JP13405	20021220
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	US 2005019655	A1	20050127	US 2004-495106	20040510
PRAI	JP 2001-389259	A	20011221		
	JP 2002-178142	A	20020619		
	WO 2002-JP13405	W	20021220		

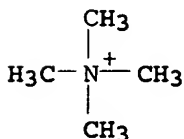
AB The battery uses S as cathode active mass and a nonaq. electrolyte solution

m.  $\leq 60^\circ$ . The electrolyte solution may also contain reduction products of S, may use a solvent containing cyclic or linear ether or fluorinated carbonate, and the electrolyte salt is a Li salt, which may be mixed with a quaternary ammonium salt. Preferably, the anode is a Li intercalating anode.

IT 661-36-9, Tetramethylammonium fluoroborate  
RL: DEV (Device component use); USES (Uses)  
(compns. of low m.p. electrolyte solns. for secondary lithium/sulfur batteries)  
RN 661-36-9 HCAPLUS  
CN Methanaminium, N,N,N-trimethyl-, tetrafluoroborate(1-) (9CI) (CA INDEX NAME)  
CM 1  
CRN 14874-70-5  
CMF B F4  
CCI CCS



CM 2  
CRN 51-92-3  
CMF C4 H12 N

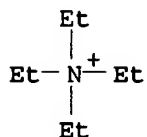


RE.CNT 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L42 ANSWER 27 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN  
AN 2003:473729 HCAPLUS  
DN 139:247925  
TI Volumetric studies of ion solvation in propylene carbonate +  
N,N-dimethylformamide electrolyte solutions  
AU Zhao, Yang; Wang, Jianji; Xuan, Xiaopeng; Lin, Ruisen  
CS Department of Chemistry, Zhejiang University, Zhejiang, 310027, Peop. Rep. China  
SO Canadian Journal of Chemistry (2003), 81(4), 307-314  
CODEN: CJCHAG; ISSN: 0008-4042  
PB National Research Council of Canada  
DT Journal  
LA English  
AB Apparent molar volumes  $V_2, \phi$  and standard partial molar volumes  $V^\circ_{2,o}$  for Et<sub>4</sub>NBr, Pr<sub>4</sub>NBr, Bu<sub>4</sub>NBr, and tetrahexylammonium bromide (Hex<sub>4</sub>NBr) have been determined at 298.15 K from precise d. measurements in

solvent mixts. of propylene carbonate (PC) with DMF. Combined with the previous data for LiClO<sub>4</sub> and LiBr in the same solvents, ionic molar volumes of Li<sup>+</sup>, Et<sub>4</sub>N<sup>+</sup>, Pr<sub>4</sub>N<sup>+</sup>, Bu<sub>4</sub>N<sup>+</sup>, Hex<sub>4</sub>N<sup>+</sup>, and related anions have been deduced from the extrapolation method suggested by Conway and co-workers. The molar volumes of these cations are quite independent of the nature of the solvent and the composition of the solvent mixts., in contrast to those of ClO<sub>4</sub><sup>-</sup> and Br<sup>-</sup> anions. Probably the Lewis-base-type solvents with similar mol. vols. have similar interactions with Li<sup>+</sup>. The constancy in partial molar volume for tetraalkylammonium ions provides helpful evidence for the lack of solvation of large tetraalkylammonium cations in organic solvents. These findings have been interpreted using scaled-particle theory. The results are discussed in terms of ion solvation, packing effects of solvent mols. in the solvation shell, and the electrostriction of solvents.

IT 71-91-0, Tetraethylammonium bromide  
 RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)  
 (volumetric studies of ion solvation in propylene carbonate and N,N-dimethylformamide electrolyte solns. for lithium batteries)  
 RN 71-91-0 HCAPLUS  
 CN Ethanaminium, N,N,N-triethyl-, bromide (9CI) (CA INDEX NAME)



● Br<sup>-</sup>

RE.CNT 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD  
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L42 ANSWER 28 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN  
 AN 2003:374048 HCAPLUS  
 DN 138:388153  
 TI Lithium ion conducting gel electrolyte and secondary polymer electrolyte lithium ion battery  
 IN Orihara, Tamotsu; Watanabe, Takeshi; Matsuyama, Mutsuhiro  
 PA Sumitomo Bakelite Co., Ltd., Japan  
 SO Jpn. Kokai Tokkyo Koho, 6 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2003142160	A2	20030516	JP 2002-62437	20020307
	WO 2003075391	A1	20030912	WO 2003-JP1816	20030219
	W: CN, KR, MX, SG, US				
	RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR				
PRAI	JP 2001-249589	A	20010820		
	JP 2002-62437	A	20020307		
AB	The electrolyte contains a polymer, a Li salt, and an organic solvent; where				

the polymer is a product of a salt monomer having interacting ions, e.g., a salt containing amine and acid functional groups having double bonds.

IT 75361-22-7

RL: DEV (Device component use); USES (Uses)

(comps. of gel electrolytes containing polymers of unsatd. salts for secondary lithium batteries)

RN 75361-22-7 HCAPLUS

CN 1-Propanaminium, N,N,N-trimethyl-3-[(2-methyl-1-oxo-2-propenyl)amino]-, salt with 2-methyl-2-[(1-oxo-2-propenyl)amino]-1-propanesulfonic acid (1:1), homopolymer (9CI) (CA INDEX NAME)

CM 1

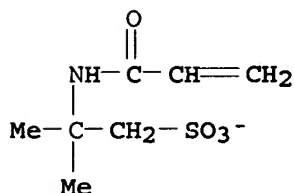
CRN 75403-74-6

CMF C10 H21 N2 O . C7 H12 N O4 S

CM 2

CRN 58778-72-6

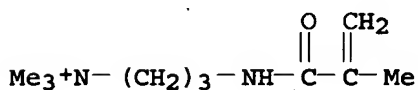
CMF C7 H12 N O4 S



CM 3

CRN 51441-64-6

CMF C10 H21 N2 O



L42 ANSWER 29 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2003:118177 HCAPLUS

DN 138:173347

TI :Onium salt, electrolyte containing the salt for nonaqueous secondary battery, and method for optimizing anode using the electrolyte

IN Matsunaga, Tomonori; Kawahara, Takeo; Matsumoto, Hajime

PA Tokuyama Corporation, Japan; National Institute of Advanced Industrial Science and Technology

SO PCT Int. Appl., 56 pp.

CODEN: PIXXD2

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2003012900	A1	20030213	WO 2002-JP7666	20020729

W: CN, JP, KR, US  
 RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT,  
 LU, MC, NL, PT, SE, SK, TR  
 JP 2003201272 A2 20030718 JP 2001-351346 20011116  
 EP 1414088 A1 20040428 EP 2002-755674 20020729  
 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,  
 IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK  
 CN 1535486 A 20041006 CN 2002-813971 20020729  
 US 2004170890 A1 20040902 US 2004-485448 20040129  
 PRAI JP 2001-231262 A 20010731  
 JP 2001-335029 A 20011031  
 JP 2001-352963 A 20011119  
 WO 2002-JP7666 W 20020729  
 GI

R<sup>1</sup>-CO-N-R<sup>2</sup> ● Z<sup>+</sup> I

AB The method for optimizing an anode interface is carried out by constructing an electrode group, having an electrolyte containing a onium salt I [R<sup>1</sup> = (substituted) monovalent hydrocarbon group; R<sup>2</sup> = monovalent organic residue; and Z<sup>+</sup> = monovalent cation] between an anode and a cathode; and applying a voltage between the anode and the cathode so as for the anode to have a potential of -1 V to -5 V in terms of the potential relative to a reference electrode of I-/I<sup>3</sup>-, to thereby form a passivating layer, made of a decomposition product of the electrolyte or salt, on the surface of the anode.

IT 481629-38-3

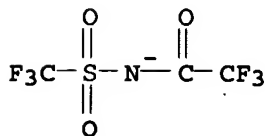
RL: TEM (Technical or engineered material use); USES (Uses)  
 (composition of onium salts for secondary lithium battery electrolytes)

RN 481629-38-3 HCAPLUS

CN Methanaminium, N,N,N-trimethyl-, salt with 2,2,2-trifluoro-N-[(trifluoromethyl)sulfonyl]acetamide (1:1) (9CI) (CA INDEX NAME)

CM 1

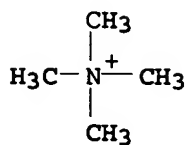
CRN 174191-24-3  
 CMF C3 F6 N O3 S



CM 2

CRN 51-92-3  
 CMF C4 H12 N





RE.CNT 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L42 ANSWER 30 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2002:925556 HCAPLUS

DN 138:15258

TI Secondary nonaqueous electrolyte battery

IN Aoki, Takashi

PA GS-Melcotec Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 6 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002352854	A2	20021206	JP 2001-155052	20010524
PRAI	JP 2001-155052		20010524		

AB The battery, using a Li transition metal oxide cathode and a carbonaceous anode, and an electrolyte solution, contains an electrolyte salt ABF<sub>4</sub>-n(CmF<sub>2m+1</sub>)<sub>n</sub> (n = 1-4, m = 1-3 and A = alkali metal). Preferably, the electrolyte solvent has a cyclic carbonate and a linear carbonate and the electrolyte solute has LiPF<sub>6</sub> or LiBF<sub>4</sub>.

IT 390750-64-8

RL: DEV (Device component use); USES (Uses)  
(nonaq. electrolyte solns. containing Li perfluorocarbon  
fluoroborate salts for secondary lithium batteries)

RN 390750-64-8 HCAPLUS

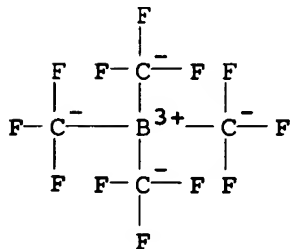
CN Ethanaminium, N,N,N-triethyl-, tetrakis(trifluoromethyl)borate(1-) (9CI)  
(CA INDEX NAME)

CM 1

CRN 390359-04-3

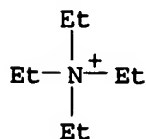
CMF C4 B F12

CCI CCS



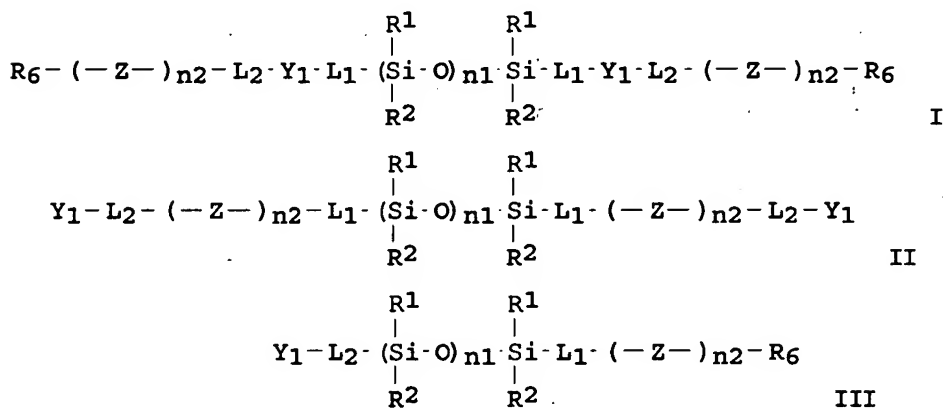
CM 2

CRN 66-40-0  
CMF C8 H20 N



L42 ANSWER 31 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN  
AN 2002:673113 HCAPLUS  
DN 137:219505  
TI Electrolyte composition, battery, photoelectrochemical cell, secondary  
nonaqueous electrolyte battery, and liquid crystal compounds  
IN Ono, Michio; Yasuda, Takayasu; Wariishi, Koji  
PA Fuji Photo Film Co., Ltd., Japan  
SO Jpn. Kokai Tokkyo Koho, 32 pp.  
CODEN: JKXXAF  
DT Patent  
LA Japanese  
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002251916	A2	20020906	JP 2001-47041	20010222
PRAI	JP 2001-47041		20010222		
OS	MARPAT 137:219505				
GI					



Z = Q131-Y111-Q121

AB The electrolyte contains a liquid crystal compound having cation and/or anion containing repeating units  $-(\text{SiR}^1\text{R}^2-\text{O})_{n_1}$ , where R<sup>1</sup> and R<sup>2</sup> = (substituted) alkyl groups,  $n_1 \geq 3$ . The liquid crystal compound is I, II, or III, where the R<sub>6</sub> = H or a substituent group, Y<sub>111</sub> = bivalent (4-7)-membered ring, Q<sub>121</sub> and Q<sub>131</sub> = bivalent junction group or single bond,  $n_2 = 1, 2$ , or 3, ( $n = 2$  or 3 the  $\geq 1$  of Y<sub>111</sub>, Q<sub>121</sub>, or Q<sub>131</sub> in the compound can

be different from each other), and X1 is the counter ion for Y1.  
Batteries, secondary nonaq. batteries, and photoelectrochem. cells use the electrolyte.

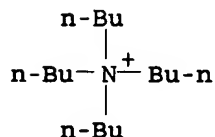
IT 311-28-4, Tetrabutylammonium iodide

RL: DEV (Device component use); USES (Uses)

(comps. of electrolytes containing liquid crystal compds. for secondary lithium batteries and photoelectrochem. cells)

RN 311-28-4 HCAPLUS

CN 1-Butanaminium, N,N,N-tributyl-, iodide (9CI) (CA INDEX NAME)



● I<sup>-</sup>

L42 ANSWER 32 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2002:553509 HCAPLUS

DN 137:127526

TI Electrolyte composition with high ion conductivity and high ion transport number and nonaqueous electrolyte secondary batteries

IN Wariishi, Koji; Sen, Masakazu; Ono, Michio

PA Fuji Photo Film Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 24 pp.

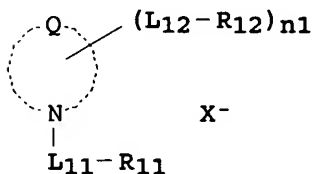
CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002208433	A2	20020726	JP 2001-325587	20011023
PRAI	JP 2000-323202	A	20001023		
OS	MARPAT 137:127526				
GI					



AB The compns. contain (A)  $\geq 1$  compds. selected from I,  
R21L21A+(L22R22) (L23R23) (L24R24) X- and R31L31N+(L32R32):C[N(L33R33) (L34R34)] [N(L35R35) (L36R36)] X- (Q = group for forming 5- or 6-membered aromatic cation; L11-12, L21-24, L31-36 = (un)substituted alkylene(oxy) and/or alkenylene(oxy); R11-12, R21-24, R31-36 = H, OM(OR)n, may form ring;  $\geq 1$  of R11-12, R21-24, R31-36 = OM(OR)n; R = (un)substituted alkyl or aryl; M = Si, B, Ti, Al, Ge, Sn; n1 = 0, natural number; X- = anion) and

(B) salts of Group IA or IIA ions. Preferable Markush structures for I are further specified. Also claimed are solid electrolyte compns. containing crosslinked compds. of component A, obtained by reaction of A with compds. having  $\geq 2$  nucleophilic groups in a mol., instead of component A. Nonaq. electrolyte secondary batteries with the said electrolyte compns. are also claimed. Batteries with high capacity and excellent cycle characteristics are obtained.

IT 444046-14-4DP, lithium complex

RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (ammonium compound-Li salt mixts. or their crosslinked solids as electrolytes for nonaq. secondary batteries)

RN 444046-14-4 HCAPLUS

CN 1H-Imidazolium, 1-methyl-3-[2-[(triethoxysilyl)oxy]ethyl]-, salt with 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]methanesulfonamide (1:1), polymer with 2-hydroxy-N-(2-hydroxyethyl)-N,N-dimethylethanaminium salt with 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]methanesulfonamide (1:1) (9CI) (CA INDEX NAME)

CM 1

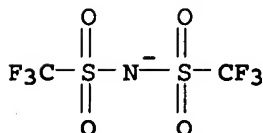
CRN 444046-13-3

CMF C6 H16 N O2 . C2 F6 N O4 S2

CM 2

CRN 98837-98-0

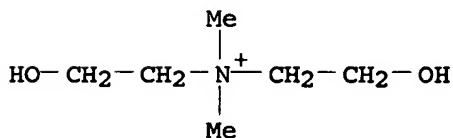
CMF C2 F6 N O4 S2



CM 3

CRN 44798-79-0

CMF C6 H16 N O2



CM 4

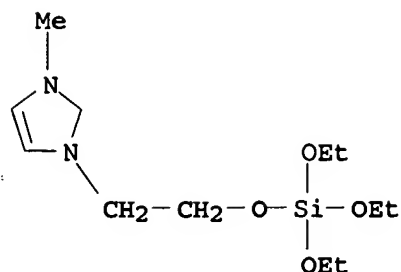
CRN 444045-88-9

CMF C12 H25 N2 O4 Si . C2 F6 N O4 S2

CM 5

CRN 444045-87-8

CMF C12 H25 N2 O4 Si

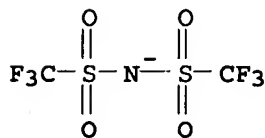


ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

CM 6

CRN 98837-98-0

CMF C2 F6 N O4 S2



L42 ANSWER 33 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2002:407255 HCAPLUS

DN 136:404283

TI Nonaqueous electrolyte battery

IN Kita, Fusaji; Uesori, Haruki; Yamaki, Junichi; Sonoda, Takaaki; Kimura, Arihisa

PA Hitachi Maxell Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 6 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002158033	A2	20020531	JP 2000-351791	20001117
PRAI	JP 2000-351791		20001117		

AB The battery use a nonaq. electrolyte solution containing an anion complex electrolyte, whose 0.1mM solution has a mol conductivity  $\geq 0.5$ . Preferably, the complex is LiPF<sub>6</sub> and may contain alkyl ammonium hexafluorophosphate, and the battery is a secondary battery having a maximum cathode potential  $\geq 4.3$  V vs Li.

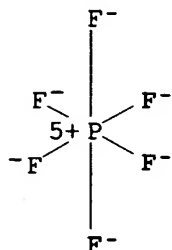
IT 429-07-2, Tetraethylammonium hexafluorophosphate  
 RL: DEV (Device component use); PRP (Properties); USES (Uses)  
 (anion complex electrolytes with controlled mol. conductivity for nonaq. electrolyte solns. for secondary lithium batteries)

RN 429-07-2 HCAPLUS

CN Ethanaminium, N,N,N-triethyl-, hexafluorophosphate(1-) (9CI) (CA INDEX NAME)

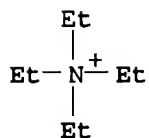
CM 1

CRN 16919-18-9  
 CMF F6 P  
 CCI CCS



CM 2

CRN 66-40-0  
 CMF C8 H20 N



L42 ANSWER 34 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2002:315264 HCAPLUS

DN 136:343316

TI Gel-type polymer electrolyte that can be molded to a self-supported film for lithium batteries

IN Oyama, Noboru; Fujimoto, Yuki; Iwase, Yoshiyuki; Nishijima, Kouichi

PA Du Pont-Mitsui Polychemicals Co., Ltd., Japan

SO PCT Int. Appl., 50 pp.

CODEN: PIXXD2

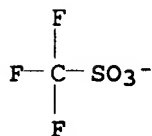
DT Patent

LA English

FAN.CNT 1

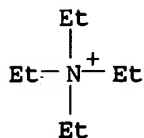
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2002033765	A2	20020425	WO 2001-JP9138	20011018
	WO 2002033765	A3	20031002		
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW				
RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				

CA 2426129 AA 20020425 CA 2001-2426129 20011018  
 JP 2002198095 A2 20020712 JP 2001-320319 20011018  
 EP 1368849 A2 20031210 EP 2001-976730 20011018  
 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,  
 IE, SI, LT, LV, FI, RO, MK, CY, AL, TR  
 CN 1555589 A 20041215 CN 2001-820726 20011018  
 PRAI JP 2000-318169 A 20001018  
 WO 2001-JP9138 W 20011018  
 AB In a gel-type polymer electrolyte, the polymer comprises (a) an  
 ethylene-unsatd. carboxylic acid copolymer or a derivative thereof and (b) a  
 polyalkylene oxide having a hydroxyl group at one terminal thereof or a  
 derivative thereof, which are bonded together by an ester bond. The gel-type  
 polymer electrolyte has a high ionic conductivity, and makes it possible to  
 provide a cell which has excellent charge/discharge characteristics at low  
 temps. as well as at high temps.  
 IT 35895-69-3, Tetraethylammonium trifluoromethanesulfonate  
 RL: DEV (Device component use); USES (Uses)  
 (gel-type polymer electrolyte that can be molded to  
 self-supported film for lithium batteries)  
 RN 35895-69-3 HCAPLUS  
 CN Ethanaminium, N,N,N-triethyl-, salt with trifluoromethanesulfonic acid  
 (1:1) (9CI) (CA INDEX NAME)  
 CM 1  
 CRN 37181-39-8  
 CMF C F3 O3 S



CM 2

CRN 66-40-0  
 CMF C8 H20 N



L42 ANSWER 35 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN  
 AN 2002:291767 HCAPLUS  
 DN 136:312580  
 TI Novel organoborate salts and nonaqueous electrolytes for secondary lithium  
 batteries  
 IN Arai, Juichi; Katayama, Hideaki; Kobayashi, Mitsuru; Yamaguchi, Hiroyuki;  
 Takahashi, Hideki; Kato, Masaru  
 PA Kanto Kagaku Kabushiki Kaisha, Japan  
 SO Eur. Pat. Appl., 21 pp.

CODEN: EPXXDW

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1197494	A2	20020417	EP 2001-121791	20010920
	EP 1197494	A3	20040526		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	JP 2002193973	A2	20020710	JP 2001-286938	20010920
	JP 3409852	B2	20030526		
	US 2002160273	A1	20021031	US 2001-957455	20010921
	TW 540183	B	20030701	TW 2001-90123393	20010921
	US 2004053139	A1	20040318	US 2003-641085	20030815
	US 6824928	B2	20041130		
	US 2005171383	A1	20050804	US 2004-972404	20041026
PRAI	JP 2000-291968	A	20000921		
	US 2001-957455	B1	20010921		
	US 2003-641085	A3	20030815		

OS MARPAT 136:312580

AB Organic borate compds. for use in lithium secondary batteries are of general structure  $B[OC(:O)R]4-X^+$ , in which R is C1-4-alkyl and C1-4-haloalkyl (e.g.,  $CF_3$  or  $C_2F_5$ ), and  $X^+$  is  $Li^+$ , quaternary ammonium, and quaternary phosphonium salts. Nonaq. electrolytes for these batteries are composed of compds. selected from cyclic or linear organic carbonates (e.g., ethylene carbonate, propylene carbonate, di-Me carbonate, Et Me carbonate, and dimethoxyethane), ethers (e.g., dimethoxyethane), fluoroalkyl ethers (e.g., perfluorobutyl Me ether, perfluorobutyl Et ether, and Me perfluoroalkyl ethers), and an inorg. lithium salt (e.g.,  $LiPF_6$ ,  $LiBF_4$ ,  $LiCl$ ,  $LiF$ ,  $LiBr$ , and  $LiI$ ). Batteries using such compns. have improved high-temperature storage characteristics. Elec. appliances (including secondary batteries) using these organic borates or nonaq. electrolytes are protected from overcharging and overdischarging by detecting the battery temperature and pressure, a means for detecting the battery voltage or current, and a means for controlling the opening and closing of the power supply according to the detected voltage or current.

IT 412030-44-5

RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)

(nonaq. electrolytes containing; organoborate salts and nonaq. electrolytes for secondary lithium batteries)

RN 412030-44-5 HCAPLUS

CN Ethanaminium, N,N,N-triethyl-, tetrakis(trifluoroacetato- $\kappa O$ )borate(1-)  
(9CI) (CA INDEX NAME)

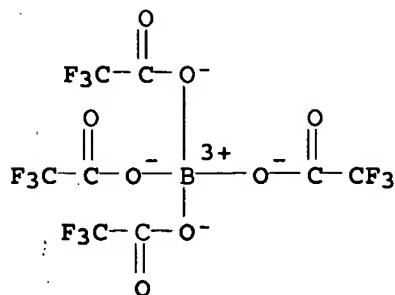
CM 1

CRN 412030-43-4

CMF C8 B F12 O8

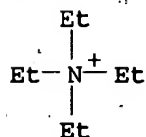
CCI CCS





CM 2

CRN 66-40-0  
 CMF C8 H20 N

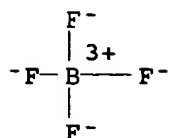


L42 ANSWER 36 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN  
 AN 2002:69630 HCAPLUS  
 DN 136:105187  
 TI Battery with additive containing electrolyte solution  
 IN Adachi, Momoe  
 PA Sony Corp., Japan  
 SO Jpn. Kokai Tokkyo Koho, 8 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002025607	A2	20020125	JP 2000-210802	20000712
PRAI	JP 2000-210802		20000712		
AB	The battery use an electrolyte solution containing an electrolyte and a tetraalkylammonium salt. The anion of the ammonium salt is selected from PF6-, ClO4-, BF4-, and CF3SO3-; and the electrolyte is LiPF6 or LiBF4.				
IT	429-06-1, Tetraethylammonium tetrafluoroborate RL: MOA (Modifier or additive use); USES (Uses) (electrolyte solns. containing tetraalkylammonium salt additives for secondary lithium batteries)				
RN	429-06-1 HCAPLUS				
CN	Ethanaminium, N,N,N-triethyl-, tetrafluoroborate(1-) (9CI) (CA INDEX NAME)				

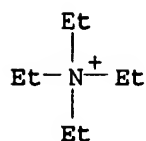
CM 1

CRN 14874-70-5  
 CMF B F4  
 CCI CCS



CM 2

CRN 66-40-0  
CMF C8 H20 N



L42 ANSWER 37 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2002:69628 HCAPLUS

DN 136:121095

TI Electrolyte solution for secondary nonaqueous electrolyte battery and the battery

IN Okada, Mikio

PA Japan Storage Battery Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 5 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002025605	A2	20020125	JP 2000-202123	20000704
PRAI	JP 2000-202123		20000704		

AB The electrolyte solution is a nonaq. solution containing HF and an ammonium compound, at a HF/ammonium compound mol ratio 0.5-3.5.

IT 38600-46-3

RL: MOA (Modifier or additive use); USES (Uses)

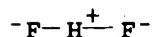
(nonaq. electrolyte solns. containing hydrogen fluoride and ammonium compds. for secondary lithium batteries)

RN 38600-46-3 HCAPLUS

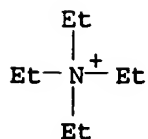
CN Ethanaminium, N,N,N-triethyl-, (hydrogen difluoride) (9CI) (CA INDEX NAME)

CM 1

CRN 18130-74-0  
CMF F2 H



CM 2

CRN 66-40-0  
CMF C8 H20 N

L42 ANSWER 38 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2002:66770 HCAPLUS

DN 136:121064

TI Nonaqueous electrolyte lithium secondary battery

IN Iwamoto, Kazuyu; Oura, Takafumi; Hatazaki, Makino; Yoshizawa, Hiroshi;  
Sonoda, Kumiko; Nakanishi, Shinji

PA Matsushita Electric Industrial Co., Ltd., Japan

SO Eur. Pat. Appl., 31 pp.

CODEN: EPXXDW

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1174940	A1	20020123	EP 2001-117048	20010712
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	JP 2002033119	A2	20020131	JP 2000-215518	20000717
	JP 2002033120	A2	20020131	JP 2000-215519	20000717
	JP 2002033124	A2	20020131	JP 2000-215520	20000717
	US 2002039677	A1	20020404	US 2001-901130	20010710
	US 6958198	B2	20051025		
	CN 1333580	A	20020130	CN 2001-123135	20010717
PRAI	JP 2000-215518	A	20000717		
	JP 2000-215519	A	20000717		
	JP 2000-215520	A	20000717		

AB The invention relates to a nonaq. electrochem. apparatus in which the difference ( $\gamma_1 - \gamma_{se}$ ) between the surface tension  $\gamma_1$  of nonaq. electrolyte and the surface free energy  $\gamma_{se}$  of electrode is not more than 10 dynes/cm. The nonaq. electrolyte contains a F-containing surface active agent.

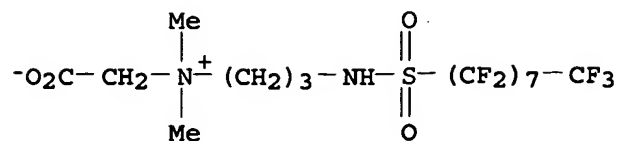
IT 75046-16-1

RL: MOA (Modifier or additive use); USES (Uses)

(nonaq. electrolyte lithium secondary battery)

RN 75046-16-1 HCAPLUS

CN 1-Propanaminium, N-(carboxymethyl)-3-[[heptadecafluorooctyl)sulfonyl]amino]-N,N-dimethyl-, inner salt (9CI) (CA INDEX NAME)



RE.CNT 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L42 ANSWER 39 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2001:778299 HCAPLUS

DN 135:333316

TI Nonaqueous electrolyte batteries

IN Okada, Mikio; Yasuda, Hideo

PA Japan Storage Battery Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 7 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2001297792	A2	20011026	JP 2000-110416	20000412
PRAI	JP 2000-110416		20000412		

AB The batteries have an electrolyte solution containing 0.1 mM-0.1M F containing ammonium salt complex and a polymer electrolyte. Preferably, the polymer electrolyte is attached to the anode.

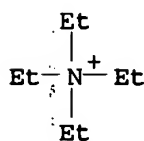
IT 145826-81-9

RL: MOA (Modifier or additive use); USES (Uses)

(electrolytes containing ammonium fluoride and polymers for secondary lithium batteries)

RN 145826-81-9 HCAPLUS

CN Ethanaminium, N,N,N-triethyl-, fluoride, compd. with hydrofluoric acid (1:4) (9CI) (CA INDEX NAME)



● F<sup>-</sup>

● 4 HF

L42 ANSWER 40 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2001:208040 HCAPLUS

DN 134:225075

TI Nonaqueous and polymer electrolytes for lithium battery and

electrochemical capacitor

IN Arai, Juichi; Katayama, Hideaki; Kobayashi, Mitsuru

PA Hitachi, Ltd., Japan

SO Eur. Pat. Appl., 33 pp.

CODEN: EPXXDW

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1085591	A1	20010321	EP 2000-118434	20000824
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	JP 2001085058	A2	20010330	JP 1999-265002	19990920
	US 6495293	B1	20021217	US 2000-645428	20000824
	TW 472412	B	20020111	TW 2000-89117443	20000829
PRAI	JP 1999-265002	A	19990920		

OS MARPAT 134:225075

AB The object of the present invention is to provide organic electrolyte and polymer electrolyte, wherein diffusivity of mobile ions is enhanced; and to provide lithium primary battery, lithium secondary battery, polymer secondary battery, and electrochem. capacitor, wherein their capacities at a low temperature are increased. The present invention relates to nonaq. electrolyte and polymer electrolyte, wherein fluorinated solvent having fluorinated alkyl group, whose terminal end structure is unsym. structure, is mixed with the electrolyte, and to various usage using the above electrolyte.

IT 429-06-1, Tetraethylammonium tetrafluoroborate  
 RL: DEV (Device component use); USES (Uses)  
 (nonaq. and polymer electrolytes for lithium  
 battery and electrochem. capacitor)

RN 429-06-1 HCAPLUS

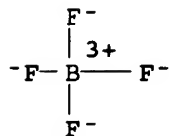
CN Ethanaminium, N,N,N-triethyl-, tetrafluoroborate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 14874-70-5

CMF B F4

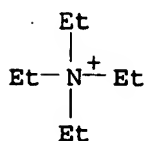
CCI CCS



CM 2

CRN 66-40-0

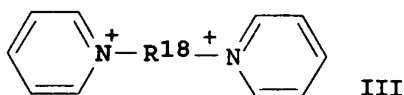
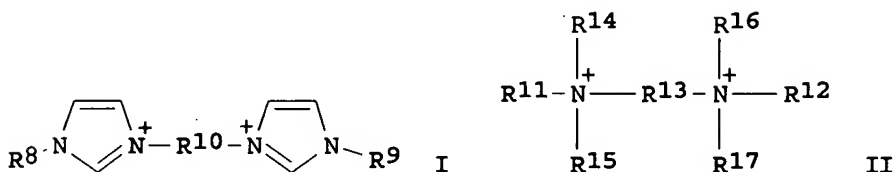
CMF C8 H20 N



RE.CNT 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L42 ANSWER 41 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN  
AN 2000:723536 HCAPLUS  
DN 133:298800  
TI Carbonaceous materials and their manufacture, vanadium oxide derivatives, solid ion conductive electrochemical elements, and secondary nonaqueous electrolyte batteries  
IN Watanabe, Kazuhiro; Nichogi, Katsuhiko; Nanai, Satonari; Miyamoto, Akihito  
PA Matsushita Electric Industrial Co., Ltd., Japan  
SO Jpn. Kokai Tokkyo Koho, 16 pp.  
CODEN: JKXXAF  
DT Patent  
LA Japanese  
FAN.CNT 3

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000285921	A2	20001013	JP 1999-155011	19990602
PRAI	JP 1998-163134	A	19980611		
	JP 1999-16754	A	19990126		
OS	MARPAT 133:298800				
GI					



AB The carbonaceous materials are heat treated hardened resin, and are prepared by mixing the resin with an aromatic compds. having 2-10 rings and hardening the mixture. The solid ion electrochem. elements contain cations selected from imidazole radical ion or its derivative, having aliphatic C connected to the N atoms, quaternary ammonium ion, I (R8 and R9 = substituents having aliphatic C connected directly to N; R10 = aliphatic C containing group), II (R14-R17 = substituents having aliphatic C connected directly to N; R11-R13 = C containing groups which may also contain aromatic groups), III (R18 = substituent containing aliphatic C), and IV (R21 and R22 = substituents having aliphatic C connected directly to N) mixed with other cations, e.g., metal ions selected from alkali metals, alkaline earth, Ag, Cu, and Zn. The batteries use the carbonaceous material for Li intercalating anodes, the conductive material as solid electrolyte, and V oxide derivs., AxV4-zMzO11

or  $A_xByV_4-zMzO_{11}$  (A and B and M are metals,  $x \leq 4$ ,  $y \leq 4$ , and  $z \leq 4$ ) for cathodes.

IT 429-07-2, Tetraethylammonium hexafluorophosphate

RL: DEV (Device component use); USES (Uses)

(electrolyte solns. containing quaternary ammonium salts and other salts for secondary lithium batteries)

RN 429-07-2 HCAPLUS

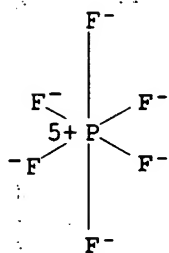
CN Ethanaminium, N,N,N-triethyl-, hexafluorophosphate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 16919-18-9

CMF F6 P

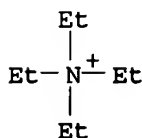
CCI CCS



CM 2

CRN 66-40-0

CMF C8 H20 N



L42 ANSWER 42 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2000:665699 HCAPLUS

DN 133:254952

TI Polymer electrolyte for lithium secondary batteries

IN Oyama, Noboru

PA Japan

SO Eur. Pat. Appl., 32 pp.

CODEN: EPXXDW

DT Patent

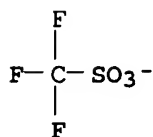
LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1037294	A2	20000920	EP 2000-105773	20000317
	EP 1037294	A3	20030730		

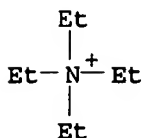
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO

	JP 2001189166	A2	20010710	JP 2000-70790	20000314
	CA 2301414	AA	20000917	CA 2000-2301414	20000316
	US 6509122	B1	20030121	US 2000-527569	20000316
	CN 1267683	A	20000927	CN 2000-104319	20000317
	AU 770639	B2	20040226	AU 2000-22331	20000317
	US 2003082458	A1	20030501	US 2002-227532	20020826
PRAI	JP 1999-71758	A	19990317		
	JP 1999-295503	A	19991018		
	US 2000-527569	A3	20000316		
AB	A polymer electrolyte providing lithium secondary batteries in which growth of lithium dendrites is suppressed and batteries exhibiting excellent discharge characteristics in low to high temperature, comprises a polymer gel holding a nonaq. solvent containing an electrolyte. The polymer gel comprises (I) a unit derived from at least one monomer having one copolymerizable vinyl group and (II) a unit derived from at least one compound selected from the group consisting of (II-a) a compound having two acryloyl groups and a (poly)oxyethylene group, (II-b) a compound having one acryloyl group and a (poly)oxyethylene group, and (II-c) a glycidyl ether compound, particularly the polymer gel comprises monomer (I), compound (II-a), and a copolymerizable plasticizing compound				
IT	35895-69-3, Tetraethylammonium trifluoromethanesulfonate RL: DEV (Device component use); USES (Uses) (polymer electrolyte for lithium secondary batteries)				
RN	35895-69-3 HCAPLUS				
CN	Ethanaminium, N,N,N-triethyl-, salt with trifluoromethanesulfonic acid. (1:1) (9CI) (CA INDEX NAME)				
CM	1				
CRN	37181-39-8				
CMF	C F3 O3 S				



CM 2

CRN 66-40-0  
CMF C8 H20 N



L42 ANSWER 43 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN  
AN 2000:643419 HCAPLUS  
DN 133:240614  
TI Ion conductive electrochemical elements



IN Nanai, Satonari; Nichogi, Katsuhiro; Watanabe, Kazuhiro; Miyamoto, Akito  
 PA Matsushita Electric Industrial Co., Ltd., Japan  
 SO Jpn. Kokai Tokkyo Koho, 5 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 3

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000251937	A2	20000914	JP 1999-50038	19990226
	US 2002012625	A1	20020131	US 1999-327070	19990607
	US 6413486	B2	20020702		
	US 2001051125	A1	20011213	US 2001-878613	20010611
	US 2003165745	A1	20030904	US 2003-392412	20030319
	US 2003185742	A1	20031002	US 2003-391698	20030319
PRAI	JP 1998-157271	A	19980605		
	JP 1998-163134	A	19980611		
	JP 1999-16754	A	19990126		
	JP 1999-50038	A	19990226		
	JP 1999-113283	A	19990421		
	US 1999-327070	A1	19990607		
	US 2001-878613	A3	20010611		

OS MARPAT 133:240614

AB The electrochem. elements are gels or solids containing a nonionic polymer, a compound containing N,N'-dialkylimidazolyl ion or its derivative, and a different cation. The different cation is preferably a metal cation. Preferably, the elements are used as electrolyte in secondary lithium batteries.

IT 429-06-1

RL: DEV (Device component use); USES (Uses)

(electrolytes containing nonionic polymers and imidazolyl ion compds. for secondary lithium batteries)

RN 429-06-1 HCAPLUS

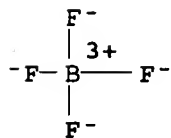
CN Ethanaminium, N,N,N-triethyl-, tetrafluoroborate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 14874-70-5

CMF B F4

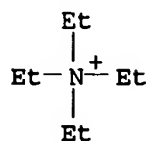
CCI CCS



CM 2

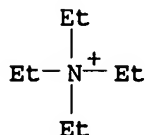
CRN 66-40-0

CMF C8 H20 N



L42 ANSWER 44 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN  
 AN 2000:596454 HCAPLUS  
 DN 133:180362  
 TI Solid electrolytes  
 IN Imanaka, Nobuto; Kawamura, Junichi  
 PA Osaka University, Japan  
 SO Jpn. Tokkyo Koho, 6 pp.  
 CODEN: JTXFFF  
 DT Patent  
 LA Japanese  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 3081922	B1	20000828	JP 1999-347867	19991207
	JP 2001163634	A2	20010619		
PRAI	JP 1999-347867		19991207		
AB	The alkali metal ion conductive solid electrolytes contain alkali metal halide and an organic halide salt of an organic compound having a quinolinium skeleton. The organic compound is quinolinium or khinaldinium compound. The electrolytes are useful for Li batteries.				
IT	68-05-3, Tetraethylammonium iodide RL: DEV (Device component use); USES (Uses) (solid electrolytes containing alkali metal halides and organic halides for secondary lithium batteries)				
RN	68-05-3 HCAPLUS				
CN	Ethanaminium, N,N,N-triethyl-, iodide (9CI) (CA INDEX NAME)				



● I-

L42 ANSWER 45 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN  
 AN 2000:317257 HCAPLUS  
 DN 132:323946  
 TI Secondary batteries with high withstand voltage, large capacity, and excellent rapid charge-discharge cycle characteristics  
 IN Tsushima, Manabu; Morimoto, Takeshi; Kuruma, Isamu  
 PA Asahi Glass Co., Ltd., Japan  
 SO Jpn. Kokai Tokkyo Koho, 4 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese

## FAN.CNT 1

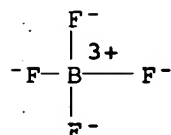
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000138074	A2	20000516	JP 1998-311140	19981030
PRAI	JP 1998-311140		19981030		
AB	The batteries comprise (a) cathodes containing activated C, Li-containing transition metal oxides, (b) anodes containing activated C, and (c) organic electrolytes containing quaternary onium salt.				
IT	69444-47-9, Triethylmethylammonium tetrafluoroborate RL: DEV (Device component use); USES (Uses) (battery electrolytes containing; secondary lithium batteries comprising organic electrolytes containing onium salts)				
RN	69444-47-9 HCAPLUS				
CN	Ethanaminium, N,N-diethyl-N-methyl-, tetrafluoroborate(1-) (9CI) (CA INDEX NAME)				

CM 1

CRN 14874-70-5

CMF B F4

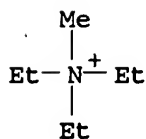
CCI CCS



CM 2

CRN 302-57-8

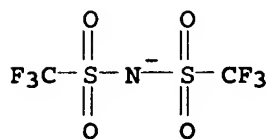
CMF C7 H18 N



L42 ANSWER 46 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN  
 AN 1999:688944 HCAPLUS  
 DN 131:301475  
 TI Room temperature molten salts and secondary lithium batteries  
 IN Matsumoto, Hajime; Miyazaki, Yoshinori; Ishikawa, Hiroshi  
 PA Agency of Industrial Sciences and Technology, Japan  
 SO Jpn. Kokai Tokkyo Koho, 4 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 11297355	A2	19991029	JP 1998-108482	19980403

JP 2981545 B2 19991122  
 PRAI JP 1998-108482 19980403  
 AB The salts have a withstand voltage  $\geq 5.8$  V. Preferably, the salts contain quaternary ammonium cation NR1R2R3R4 (R1-3 = lower alkyl, aryl, heterocyclic, or aralkyl groups; R1 and R2 may form a cycloalkyl group; R4 = alkyl group), and the anion is selected from (CF3SO2)2N-, CF3SO3-, BF4-, Al3Cl8-, Al2Cl7-, AlCl4-, and PF6-. Secondary lithium batteries use the salts as electrolytes.  
 IT 210230-43-6  
 RL: DEV (Device component use); USES (Uses)  
 (Room temperature molten salts for electrolytes in secondary lithium batteries)  
 RN 210230-43-6 HCAPLUS  
 CN 1-Hexanaminium, N,N,N-trimethyl-, salt with 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]methanesulfonamide (1:1) (9CI) (CA INDEX NAME)  
 CM 1  
 CRN 98837-98-0  
 CMF C2 F6 N O4 S2



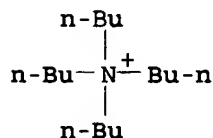
CM 2  
 CRN 16208-27-8  
 CMF C9 H22 N

Me- (CH2)5-N+Me3

L42 ANSWER 47 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN  
 AN 1999:636149 HCAPLUS  
 DN 131:245575  
 TI Lithium secondary battery and electrolyte exhibiting safe operation termination in electric apparatus  
 IN Arai, Juichi; Katayama, Hideaki; Akahoshi, Haruo; Takamura, Tomoe; Iwayanagi, Takao  
 PA Hitachi, Ltd., Japan  
 SO Eur. Pat. Appl., 27 pp.  
 CODEN: EPXXDW  
 DT Patent  
 LA English  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 944126	A1	19990922	EP 1999-102880	19990303
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	TW 480756	B	20020321	TW 1999-88102672	19990223
	US 6475680	B1	20021105	US 1999-267671	19990315

JP 11329497 A2 19991130 JP 1999-69539 19990316  
 PRAI JP 1998-68113 A 19980318  
 AB A lithium secondary battery is described which is capable of terminating the operation of the battery safely, without rapid change in appearance, gas generation, or pressure change when overcharge, overdischarge, or abnormal temperature rise occurs in the battery, the electrolyte, or the elec. apparatus using the battery as a power source. The battery comprises an anode capable of absorbing and desorbing lithium, a cathode capable of absorbing and desorbing lithium, and a non-aqueous electrolyte which is solidified by thermal reaction at a designated temperature. The electrolyte contains a Li salt, a thermally polymerizable non-aqueous solvent, e.g., a cyclic carbonate such as di-Ph carbonate, and an initiator, e.g., I2.  
 IT 311-28-4, Tetrabutylammonium iodide  
 RL: CAT (Catalyst use); DEV (Device component use); NUU (Other use, unclassified); USES (Uses)  
 (electrolytes containing; lithium secondary battery and electrolyte exhibiting safe operation termination in elec. apparatus)  
 RN 311-28-4 HCAPLUS  
 CN 1-Butanaminium, N,N,N-tributyl-, iodide (9CI) (CA INDEX NAME)



● I<sup>-</sup>

RE.CNT 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD  
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L42 ANSWER 48 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN  
 AN 1999:545324 HCAPLUS  
 DN 131:159750  
 TI Method for removing water from organic electrolyte solutions  
 IN Sekiguchi, Kazuo; Wada, Koichi; Kawasaki, Toshiya  
 PA Showa Denko K. K., Japan  
 SO Jpn. Kokai Tokkyo Koho, 4 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 11233122	A2	19990827	JP 1998-37555	19980219
	JP 3511883	B2	20040329		
PRAI	JP 1998-37555		19980219		
AB	Water is removed from the organic battery electrolyte solution by electrolysis at ≤25° solution temp while applying a 1-2 V d.c. across the cell.				
IT	69444-47-9				
	RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses) (removal of water by d.c. electrolysis from organic electrolyte solns. for lithium batteries)				

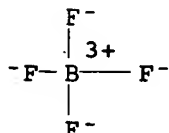
RN 69444-47-9 HCAPLUS  
 CN Ethanaminium, N,N-diethyl-N-methyl-, tetrafluoroborate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 14874-70-5

CMF B F4

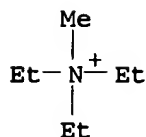
CCI CCS



CM 2

CRN 302-57-8

CMF C7 H18 N



L42 ANSWER 49 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1999:390273 HCAPLUS

DN 131:21352

TI Manufacture of electrolytes and secondary batteries

IN Yamamoto, Tomoya; Kawakami, Soichiro

PA Canon K. K., Japan

SO Jpn. Kokai Tokkyo Koho, 14 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 11162508	A2	19990618	JP 1998-271586	19980925
	JP 3428910	B2	20030722		
	US 6277525	B1	20010821	US 1998-159572	19980924
PRAI	JP 1997-259996	A	19970925		

AB The organic F and Si containing salt electrolytes are prepared by reacting at least an organic silane with a fluoro compound in a nonaq. solvent based medium. Secondary Li batteries are prepared by using the electrolytes.

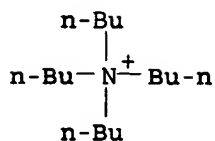
IT 429-41-4, Tetrabutylammonium fluoride

RL: RCT (Reactant); RACT (Reactant or reagent)

(in manufacture of organic fluorine and silicon containing salts for electrolytes for secondary lithium batteries)

RN 429-41-4 HCAPLUS

CN 1-Butanaminium, N,N,N-tributyl-, fluoride (9CI) (CA INDEX NAME)

● F<sup>-</sup>

L42 ANSWER 50 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN  
 AN 1998:351662 HCAPLUS  
 DN 129:97780  
 TI Secondary lithium batteries using hydrofluoride containing electrolytes  
 IN Kanemura, Kiyoshi  
 PA Morita Kagaku Kogyo Co., Ltd., Japan  
 SO Jpn. Kokai Tokkyo Koho, 5 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 FAN.CNT 1

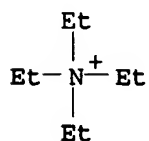
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 10149839	A2	19980602	JP 1996-320974	19961115
	JP 3115839	B2	20001211		
PRAI	JP 1996-320974		19961115		
OS	MARPAT 129:97780				
GI					

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

AB The batteries use Li, Li alloy or Li intercalating anodes, Li intercalating cathodes, and Li<sup>+</sup> conductive electrolyte; where the electrolyte contains 50-10,000 ppm quaternary ammonium hydrofluoride I (R and R' are C1-4 alkyl group, m = 1-6), quaternary phosphonium hydrofluoride II, or trialkylamine hydrofluoride III. These batteries have long cycle life.

IT 145826-81-9  
 RL: DEV (Device component use); USES (Uses)  
 (electrolyte solns. containing hydrofluoride additives for secondary lithium batteries)

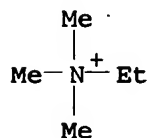
RN 145826-81-9 HCAPLUS  
 CN Ethanaminium, N,N,N-triethyl-, fluoride, compd. with hydrofluoric acid (1:4) (9CI) (CA INDEX NAME)

● F<sup>-</sup>

●4 HF

L42 ANSWER 51 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN  
 AN 1998:217409 HCAPLUS  
 DN 128:246224  
 TI Secondary nonaqueous electrolyte batteries  
 IN Takami, Norio; Oosaki, Takahisa  
 PA Toshiba Corp., Japan  
 SO Jpn. Kokai Tokkyo Koho, 6 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 10092467	A2	19980410	JP 1996-245959	19960918
	JP 3426869	B2	20030714		
PRAI	JP 1996-245959		19960918		
AB	The batteries use a room temperature molten salt electrolyte containing a Li salt and an organic quaternary ammonium salt and a Li intercalating anodes composed of oxides, sulfides, and/or nitrides of Group IB, IIB, IIIB, IVB, VB, or VIII elements.				
IT	27697-51-4 RL: DEV (Device component use); USES (Uses) (compsn. of room temperature molten salt electrolytes for secondary lithium batteries)				
RN	27697-51-4 HCAPLUS				
CN	Ethanaminium, N,N,N-trimethyl-, chloride (9CI) (CA INDEX NAME)				

● Cl<sup>-</sup>

L42 ANSWER 52 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN  
 AN 1998:70902 HCAPLUS



DN 128:130289  
 TI Secondary batteries using crosslinked polymer electrolytes  
 IN Yamaguchi, Takitaro; Katsumata, Mamoru; Iizuka, Hiroshi  
 PA Yazaki Corp., Japan  
 SO Jpn. Kokai Tokkyo Koho, 9 pp.  
 CODEN: JKXXAF

DT Patent  
 LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 10021920	A2	19980123	JP 1996-167965	19960627
	JP 3558243	B2	20040825		
PRAI	JP 1996-167965		19960627		

AB The batteries use an alkali siloxyaluminate crosslinked polymer electrolyte. The polymer is preferably a methacrylate ester polymer, and the siloxyaluminate is Li siloxyaluminate. These batteries have long cycle life.

IT 87340-03-2P  
 RL: DEV (Device component use); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PREP (Preparation); PROC (Process); USES (Uses)

(secondary lithium batteries using lithium diphenylsiloxyaluminate crosslinked methacrylate ester polymer electrolytes)

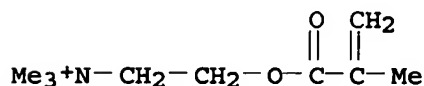
RN 87340-03-2 HCAPLUS

CN Ethanaminium, N,N,N-trimethyl-2-[(2-methyl-1-oxo-2-propenyl)oxy]-, iodide, polymer with methyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 26536-87-8

CMF C9 H18 N O2 . I

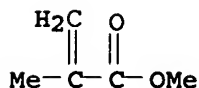


● I<sup>-</sup>

CM 2

CRN 80-62-6

CMF C5 H8 O2



L42 ANSWER 53 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN  
 AN 1997:562436 HCAPLUS

DN 127:222968  
 TI Secondary batteries with aluminum-plastic laminate packagings  
 IN Kimura, Okitoshi; Osawa, Toshiyuki  
 PA Ricoh Co., Ltd., Japan  
 SO Jpn. Kokai Tokkyo Koho, 8 pp.  
 CODEN: JKXXAF

DT Patent  
 LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 09213285	A2	19970815	JP 1996-35390	19960130
	JP 3512551	B2	20040329		
PRAI	JP 1996-35390		19960130		

AB The batteries have battery elements sealed in a container of folded laminates containing at least an Al layer inside a multilayer plastic sheet. Preferably, the batteries use carbonaceous anodes and electrolytes containing (Cf3SO2)NLi mixed with M(BF4)x (M =alkali or alkaline earth metal, x =1 or 2) and/or RR1R2R3NBF4 (R-R3 are alkyl groups).

IT 429-42-5  
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)  
 (electrolyte compns. for secondary lithium  
 batteries using aluminum-plastic laminate packagings)

RN 429-42-5 HCAPLUS

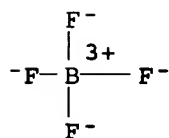
CN 1-Butanaminium, N,N,N-tributyl-, tetrafluoroborate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 14874-70-5

CMF B F4

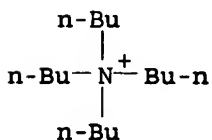
CCI CCS



CM 2

CRN 10549-76-5

CMF C16 H36 N



L42 ANSWER 54 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN  
 AN 1996:758927 HCAPLUS  
 DN 126:62662

TI Stable solid electrolytes containing polymer compound composites for lithium battery

IN Watanabe, Masayoshi; Ue, Makoto

PA Mitsubishi Chemical Corp., Japan

SO Jpn. Kokai Tokkyo Koho, 4 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 08245828	A2	19960924	JP 1995-77291	19950308
PRAI	JP 1995-77291		19950308		

AB The title composites comprise 0.1-10 mol ratio of carboxylic acid aliphatic quaternary ammonium salts to Li salts. The aliphatic quaternary ammonium salts include triethylmethylammonium benzoate, tetraethylammonium benzoate, tributylmethylammonium benzoate, tributylmethylammonium acetate, and/or triethylmethylammonium acetate. The Li salts include lithium acetate, lithium benzoate, and/or lithium bis(trifluoromethylsulfonyl)imide. The solid electrolytes are useful as electrostatic shielding materials in lithium battery or other electrochem. devives.

IT 16909-22-1

RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)  
(polymer compound composites containing; stable solid electrolytes containing polymer compound composites for lithium battery)

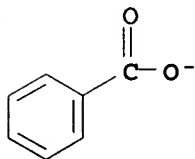
RN 16909-22-1 HCAPLUS

CN Ethanaminium, N,N,N-triethyl-, benzoate (9CI) (CA INDEX NAME)

CM 1

CRN 766-76-7

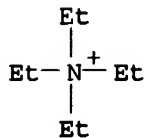
CMF C7 H5 O2



CM 2

CRN 66-40-0

CMF C8 H20 N

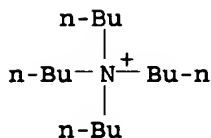


AN 1996:452722 HCAPLUS  
 DN 125:91380  
 TI Solid electrolytes containing tetrabutyl ammonium thiocyanate and  
 electrochemical cells thereof  
 IN Saidi, Eileen S.  
 PA USA  
 SO U.S., 10 pp.  
 CODEN: USXXAM  
 DT Patent  
 LA English  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5532082	A	19960702	US 1994-267067	19940627
PRAI	US 1994-267067		19940627		
AB	Solid electrolytes containing a source of lithium cations and a source of thiocyanate anions and methods for preparing electrolytic cells from such solid electrolytes are provided. Preferably the solid electrolyte includes LiPF <sub>6</sub> and [CH <sub>3</sub> (CH <sub>2</sub> ) <sub>3</sub> ] <sub>4</sub> NSCN. The tetra-Bu ammonium cation also acts as a surfactant which improves the coatability of the electrolyte mixture prior to being cured. The thiocyanate anion improves the lithium plating process by adsorbing onto and modifying the lithium anode surface.				
IT	3674-54-2, Tetrabutylammonium thiocyanate RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses) (compsn. and manufacture of tetra-Bu ammonium thiocyanate containing solid electrolytes for lithium/vanadium oxide batteries)				
RN	3674-54-2 HCAPLUS				
CN	1-Butanaminium, N,N,N-tributyl-, thiocyanate (9CI) (CA INDEX NAME)				

CM 1

CRN 10549-76-5  
 CMF C16 H36 N



CM 2

CRN 302-04-5  
 CMF C N S



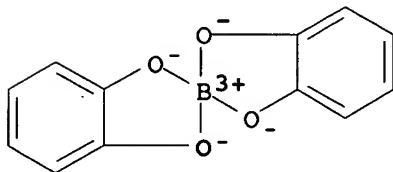
L42 ANSWER 56 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN  
 AN 1995:494467 HCAPLUS  
 DN 122:244103  
 TI Battery electrolyte  
 IN Wuehr, Manfred

PA Germany  
 SO Ger. Offen., 20 pp.  
 CODEN: GWXXBX  
 DT Patent  
 LA German  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 4316104	A1	19941117	DE 1993-4316104	19930513
	WO 9427335	A1	19941124	WO 1994-EP1366	19940429
	W: AU, BB, BG, BR, BY, CA, CN, CZ, FI, HU, JP, KP, KR, KZ, LK, LV, MG, MN, MW, NO, NZ, PL, RO, RU, SD, SK, UA, US, UZ, VN				
	RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
	AU 9467946	A1	19941212	AU 1994-67946	19940429
	EP 698301	A1	19960228	EP 1994-916172	19940429
	EP 698301	B1	19970108		
	R: DE, FR, GB				
	US 5660947	A	19970826	US 1996-545592	19960220
PRAI	DE 1993-4316104	A	19930513		
	WO 1994-EP1366	W	19940429		
AB	The stable and environmentally acceptable electrolyte for especially Li batteries contains a salt MBL2 in propylene carbonate or butylene carbonate. M is Li or quaternary ammonium ion and L is a ligand bonded to B over 2 O atoms. MBL2 is Li bis[1,2-benzenediolato-O,O']borate LiB(C <sub>6</sub> H <sub>4</sub> O <sub>2</sub> ) <sub>2</sub> , Li bis[salicylato]borate LiB(C <sub>7</sub> H <sub>4</sub> O <sub>3</sub> ) <sub>2</sub> , or tetraalkylammonium bis[1,2-benzenediolato-O,O']borate NR <sub>4</sub> B(C <sub>6</sub> H <sub>4</sub> O <sub>2</sub> ) <sub>2</sub> or NR <sub>3</sub> R <sub>1</sub> B(C <sub>6</sub> H <sub>4</sub> O <sub>2</sub> ) <sub>2</sub> , where R and R <sub>1</sub> are alkyls.				
IT	22364-89-2P				
	RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses) (lithium battery electrolyte)				
RN	22364-89-2 HCAPLUS				
CN	Methanaminium, N,N,N-trimethyl-, (T-4)-bis[1,2-benzenediolato(2-)-O,O']borate(1-) (9CI) (CA INDEX NAME)				

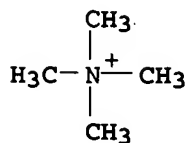
CM 1

CRN 16986-25-7  
 CMF C12 H8 B O4  
 CCI CCS



CM 2

CRN 51-92-3  
 CMF C4 H12 N



L42 ANSWER 57 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1995:302905 HCAPLUS

DN 122:60208

TI Electrolytes for lithium-based batteries, and batteries containing the electrolytes

IN Willmann, Patrick; Lemordant, Daniel; Tudela-Ribes, Antonio,

PA Centre National d'Etudes Spatiales, Fr.

SO Fr. Demande, 20 pp.

CODEN: FRXXBL

DT Patent

LA French

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
FR 2704099	A1	19941021	FR 1993-4442	19930415
FR 2704099	B1	19950707		
PRAI FR 1993-4442		19930415		

AB The electrolytes, consisting of a solution of  $\geq 1$  Li salts in an organic solvent, contain a surfactant selected from C<sub>6</sub>-12F<sub>2-9</sub> fluorocarbons containing a pos. or neg. charged or neutral polar hydrophilic group. These batteries can be recharged more times than the prior-art batteries.

IT 56773-42-3, Tetraethylammonium perfluorooctanesulfonate

RL: MOA (Modifier or additive use); USES (Uses)

(surfactant; surfactant-containing electrolytes for increased recharge cycles of lithium-based batteries)

RN 56773-42-3 HCAPLUS

CN Ethanaminium, N,N,N-triethyl-, salt with 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptafluoro-1-octanesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 45298-90-6

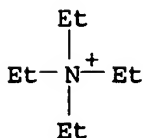
CMF C8 F17 O3 S



CM 2

CRN 66-40-0

CMF C8 H20 N



L42 ANSWER 58 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1994:413815 HCAPLUS

DN 121:13815

TI Fluorinated surfactants as additives for lithium batteries

AU Lemordant, D.; Ribes, A. Tudela; Willmann, P.

CS Lab. Energ. et React. aux Interfaces, Univ. P. et M. Curie, Paris, 75005, Fr.

SO Power Sources (1993), 14, 69-80

CODEN: POSOAN; ISSN: 0743-7137

DT Journal

LA English

AB The effects of a fluorinated surface active agent tetraethylammonium perfluorooctylsulfonate (TEAFOS) on the cycling efficiencies of the Li electrode in propylene carbonate (PC)/LiClO<sub>4</sub> electrolyte were studied. Cycling Li on an inert support shows very low efficiency in the absence of any additive. Addition of organic additives like benzene or 2-methylthiophene to the electrolyte solution improved the coulombic efficiency of Li during deposition/dissoln. cycles. TEAFOS appears to be a very efficient additive as the quantity (in moles) of surfactant required to obtain the same improvement as benzene, for example, is at least one order of magnitude lower. Organo salts like Li perfluorooctane sulfonate or TEAFOS are soluble in PC and conductivity data show that they behave as fully dissociated salts in highly polar organic solvents like PC. Surprisingly, the variations of the surface tension at the PC/air interface or the contact angle (on glass plates) are apparent only for concentration >0.01 mol/L. In connection with this result, it was found that the efficiency increases with surfactant concentration from 0.01 mol/L up to the concentration of ≈0.05 mol/L at saturation at room temperature. Addition of 5% of benzene to the electrolyte containing

0.02 mol/L of TEAFOS lead to a further improvement of the cycling efficiency. The mechanism of action of these lipophilic compds. is similar and related to adsorption at interface.

IT 56773-42-3, Tetraethylammonium perfluorooctylsulfonate

RL: USES (Uses)

(surfactant, electrolyte containing, lithium perchlorate, for lithium anode cycling efficiency, in batteries)

RN 56773-42-3 HCAPLUS

CN Ethanaminium, N,N,N-triethyl-, salt with 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptafluoro-1-octanesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 45298-90-6

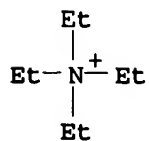
CMF C8 F17 O3 S

-O<sub>3</sub>S- (CF<sub>2</sub>)<sub>7</sub>-CF<sub>3</sub>

CM 2

CRN 66-40-0

CMF C8 H20 N



L42 ANSWER 59 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1993:195132 HCAPLUS

DN 118:195132

TI Secondary lithium batteries

IN Idota, Yoshio

PA Fuji Photo Film Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 9 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN: CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 04349366	A2	19921203	JP 1991-121281	19910527
	US 5260148	A	19931109	US 1992-889137	19920527
PRAI	JP 1991-121281	A	19910527		

AB The batteries use an anion-doping cathode active mass and an anode-active mass containing LipX (X is anion, p is the valence of X) insol. in the battery electrolyte solvent, an electrolyte containing AqYr (A is cation, Y may be the same as X or a different anion, Li salt of Y is insol. in the electrolyte solvent, and q is the product of the valence of Y and r divided by the valence of A).

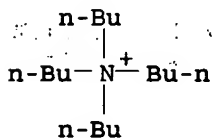
IT 429-41-4, Tetrabutylammonium fluoride

RL: USES (Uses)

(electrolyte, for secondary lithium batteries)

RN 429-41-4 HCAPLUS

CN 1-Butanaminium, N,N,N-tributyl-, fluoride (9CI) (CA INDEX NAME)

● F<sup>-</sup>

L42 ANSWER 60 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1993:195131 HCAPLUS

DN 118:195131

TI Secondary molten-salt lithium batteries

IN Takami, Norio; Osaki, Takahisa

PA Toshiba Corp., Japan

SO Jpn. Kokai Tokkyo Koho, 4 pp.

CODEN: JKXXAF

DT Patent



LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 04349365	A2	19921203	JP 1991-120836	19910527
	JP 3075766	B2	20000814		
PRAI	JP 1991-120836		19910527		

AB The batteries use Li alloy and/or Li-intercalating carbonaceous anodes; Li metal oxides containing Co, Ni, Mn, Fe, V, Cr, Mo, and/or Ti for their cathodes; and a room-temperature molten-salt electrolyte containing Al halides and Li salts at Al<sup>3+</sup> concentration 30-55 mol% and Li<sup>+</sup> concentration 0.1-12 mol.%, and organic

halides containing substituted ammonium ions.

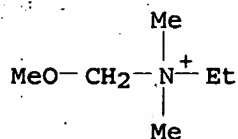
IT 147270-19-7

RL: USES (Uses)

(electrolytes containing aluminum chloride and aluminum lithium chloride and, for secondary lithium batteries)

RN 147270-19-7 HCAPLUS

CN Ethanaminium, N-(methoxymethyl)-N,N-dimethyl-, chloride (9CI) (CA INDEX NAME)

● Cl<sup>-</sup>

L42 ANSWER 61 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1992:515162 HCAPLUS

DN 117:115162

TI Organic-electrolyte Batteries

IN Kita, Fusaji; Kawakami, Akira

PA Hitachi Maxell, Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 6 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 04032160	A2	19920204	JP 1990-134588	19900524
PRAI	JP 1990-134588		19900524		

OS MARPAT 117:115162

AB Alkali metal batteries use electrolyte solns. of LiCF<sub>3</sub>SO<sub>3</sub> and (C<sub>n</sub>H<sub>2n+1</sub>)<sub>4</sub>NCF<sub>3</sub>SO<sub>3</sub> dissolved in organic solvents containing ≥55 volume% ethers. The batteries have good low-temperature performance.

IT 35895-69-3, Tetraethylammonium trifluoromethanesulfonate

RL: USES (Uses)

(electrolytes containing lithium trifluoromethanesulfonate and, solvent mixts. containing ethers for, in batteries)

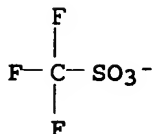
RN 35895-69-3 HCAPLUS

CN Ethanaminium, N,N,N-triethyl-, salt with trifluoromethanesulfonic acid  
(1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 37181-39-8

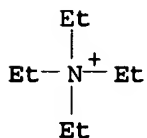
CMF C F3 O3 S



CM 2

CRN 66-40-0

CMF C8 H20 N



L42 ANSWER 62 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1992:197682 HCAPLUS

DN 116:197682

TI Solid polymer electrolytes

IN Narang, Subhash C.; Macdonald, Digby D.

PA SRI International, USA

SO PCT Int. Appl., 35 pp.

CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9113472	A1	19910905	WO 1991-US666	19910131
	W: CA, JP				
	RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LU, NL, SE				
	US 5061581	A	19911029	US 1990-476270	19900207
	EP 466905	A1	19920122	EP 1991-904243	19910131
	R: DE, FR, GB, IT				
	JP 04506983	T2	19921203	JP 1991-504488	19910131
	CA 2049340	C	19991123	CA 1991-2049340	19910131
PRAI	US 1990-476270	A	19900207		
	WO 1991-US666	W	19910131		

AB In the electrolyte having improved ambient-temperature ionic conductivity and containing

≥1 pos. charged ionic species dissolved in a polymer, the amorphous polymer or copolymer has a polyether structure with ≥1 portion of the ether O being replaced with S or NR where R includes ≥1 site capable of associating with the pos. charged ionic species and has 2-10 C

atoms. The solid electrolytes are suitable for secondary batteries, capacitors, and microelectrochem. sensors. The elec. conds. of the novel solid electrolytes are given and compared to the conventional PEO electrolyte conductivity. Performance of Li batteries containing the solid electrolytes was measured.

IT 140714-67-6D, lithium complexes

RL: DEV (Device component use); USES (Uses)

(electrolytes, for batteries)

RN 140714-67-6 HCAPLUS

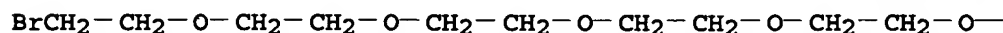
CN 1-Octanaminium, N-methyl-N,N-dioctyl-, chloride, polymer with 1,29-dibromo-3,6,9,12,15,18,21,24,27-nonaioxanonacosane and sodium sulfide (Na<sub>2</sub>S) (9CI) (CA INDEX NAME)

CM 1

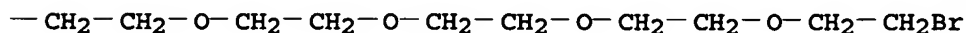
CRN 140714-66-5

CMF C20 H40 Br2 O9

PAGE 1-A



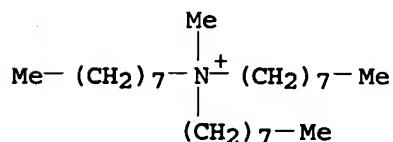
PAGE 1-B



CM 2

CRN 5137-55-3

CMF C25 H54 N . Cl

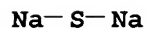


● Cl<sup>-</sup>

CM 3

CRN 1313-82-2

CMF Na<sub>2</sub> S



L42 ANSWER 63 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1992:132784 HCAPLUS

DN 116:132784

TI Nonaqueous batteries

IN Kita, Fusaji; Kawakami, Akira

PA Hitachi Maxell, Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 9 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 03238757	A2	19911024	JP 1990-36744	19900216
PRAI	JP 1990-36744		19900216		

AB Alkali metal batteries use electrolyte solns. of LiCF<sub>3</sub>SO<sub>3</sub> or Lewis acids or their salts dissolved in solvent mixts. containing ≥55 volume% linear ethers, and the ratio of the length of circumference of the seal of the battery (l, cm) to the volume of electrolyte (mL) is controlled to ≤10. These batteries have improved performance at lower temperature and retain low resistance after storing. A 0.57M LiCF<sub>3</sub>SO<sub>3</sub> and 0.03M LiSbF<sub>6</sub> solution in a 1:2 (volume) propylene carbonate- 1,2-dimethoxyethane mixture was added at 1.8 mL to Li/MnO<sub>2</sub> batteries having l = 4.5 cm.

IT 429-06-1, Tetraethylammonium tetrafluoroborate

RL: USES (Uses)

(electrolytes containing, solvent mixts. containing linear ethers for, in lithium batteries)

RN 429-06-1 HCAPLUS

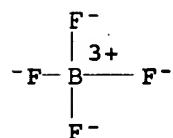
CN Ethanaminium, N,N,N-triethyl-, tetrafluoroborate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 14874-70-5

CMF B F4

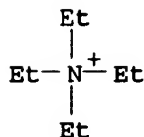
CCI CCS



CM 2

CRN 66-40-0

CMF C8 H20 N



L42 ANSWER 64 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1991:495952 HCAPLUS

DN 115:95952

TI Secondary lithium batteries

IN Yamaura, Junichi; Koshina, Hide; Nishikawa, Yukio; Okuno, Hiromi; Eda, Nobuo; Morita, Teruyoshi; Ozaki, Yoshuki

PA Matsushita Electric Industrial Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 7 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 03119667	A2	19910522	JP 1989-257352	19891002
PRAI	JP 1989-257352		19891002		

AB Li-MnO<sub>2</sub> batteries use solns. of LiPF<sub>6</sub> in organic solvent containing quaternary ammonium salt at 5-30 mol% of LiPF<sub>6</sub> as electrolytes. The quaternary ammonium salts suppress decomposition of LiPF<sub>6</sub>; and these batteries are safe and nonpolluting, and have high energy/weight ratio and storage stability. A 1M LiPF<sub>6</sub>/1:1 (volume) propylene carbonate-ethylene carbonate solution containing 0.2M Et<sub>4</sub>N.BF<sub>4</sub> was used in examples.

IT 429-06-1, Tetraethylammonium tetrafluoroborate

RL: USES (Uses)

(electrolytes containing, lithium fluorophosphate, for secondary lithium batteries)

RN 429-06-1 HCAPLUS

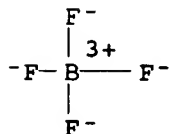
CN Ethanaminium, N,N,N-triethyl-, tetrafluoroborate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 14874-70-5

CMF B F4

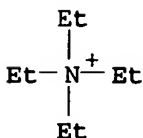
CCI CCS



CM 2

CRN 66-40-0

CMF C8 H20 N



L42 ANSWER 65 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1991:250754 HCAPLUS  
 DN 114:250754  
 TI Secondary lithium batteries  
 IN Kuryama, Kazuya  
 PA Yuasa Battery Co., Ltd., Japan  
 SO Jpn. Kokai Tokkyo Koho, 3 pp.  
 CODEN: JKXXAF

DT Patent  
 LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 03057168	A2	19910312	JP 1989-193567	19890726
PRAI	JP 1989-193567		19890726		

AB The batteries have Li-containing anodes and an electrolyte containing Li salts, quaternary ammonium salts, and thiophene derivs. High charge-discharge efficiency and long cycle lifetime are obtained. Thus, a battery having a Li anode, MnO<sub>2</sub>-based cathode, and electrolyte containing 0.05M Et<sub>4</sub>NBF<sub>4</sub>, 0.05M 2-methylthiophene, and 1M LiClO<sub>4</sub> in 1:1 propylene carbonate-MeOCH<sub>2</sub>CH<sub>2</sub>OMe, was cycled between 3.5 and 2.4 V, and showed high retention of capacity.

IT 429-06-1, Tetraethylammonium tetrafluoroborate  
 RL: USES (Uses)  
 (electrolyte, containing lithium salts and thiophene derivs., for secondary lithium batteries, for long cycle lifetime)

RN 429-06-1 HCAPLUS

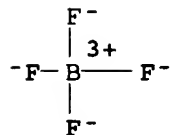
CN Ethanaminium, N,N,N-triethyl-, tetrafluoroborate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 14874-70-5

CMF B F4

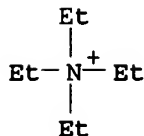
CCI CCS



CM 2

CRN 66-40-0

CMF C8 H20 N



L42 ANSWER 66 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN  
 AN 1991:65875 HCAPLUS

DN 114:65875  
 TI Organic electrolyte batteries  
 IN Kita, Fusaji; Kajita, Kozo  
 PA Hitachi Maxell, Ltd., Japan  
 SO Jpn. Kokai Tokkyo Koho, 5 pp.  
 CODEN: JKXXAF

DT Patent  
 LA Japanese  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 02239571	A2	19900921	JP 1989-61406	19890314
PRAI	JP 1989-61406		19890314		

AB Electrolytes of the batteries contain  $\text{LiCF}_3\text{CO}_2$  and addnl. salts selected from other Li, tetraalkylammonium, or tetraalkylphosphonium salts. High safety and storage stability are obtained. Thus, 0.3M  $\text{LiCF}_3\text{CO}_2$  + 0.5M  $\text{LiClO}_4$ /1:1:1 propylene carbonate-THF-DME electrolyte having a high conductivity was used in a Li-MnO<sub>2</sub> battery, which showed high voltage in a high-rate discharge. In short-circuiting tests, none out of 10 batteries showed surface temperature >150°, vs. 2 out of 10 reference batteries containing 0.8M  $\text{LiClO}_4$  electrolyte.

IT 429-07-2, Tetraethylammonium hexafluorophosphate  
 RL: USES (Uses)  
 (battery electrolytes containing lithium  
 trifluoroacetate and, for safety and high performance)

RN 429-07-2 HCAPLUS

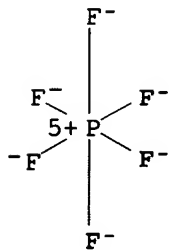
CN Ethanaminium, N,N,N-triethyl-, hexafluorophosphate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 16919-18-9

CMF F6 P

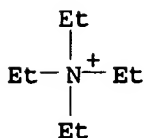
CCI CCS



CM 2

CRN 66-40-0

CMF C8 H20 N



L42 ANSWER 67 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1989:216345 HCAPLUS

DN 110:216345

TI Electrolyte solutions for secondary lithium batteries

IN Hirai, Toshiro; Yamaki, Junichi; Tobishima, Shinichi; Arakawa, Masayasu; Yoshimatsu, Isamu

PA Nippon Telegraph and Telephone Public Corp., Japan

SO Jpn. Kokai Tokkyo Koho, 8 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 01030179	A2	19890201	JP 1987-185462	19870727
	JP 2546680	B2	19961023		
PRAI	JP 1987-185462		19870727		

AB The title solns. contain Li salts and 1-100 mM quaternary ammonium ions added as polymers having quaternary ammonium groups. Thus, a polymer having repeating units  $-N^+(Cl^-)Me_2(CH_2)_6 N^+(Cl^-)Me_2(CH_2)_3-$  was added at 10 mM ammonium group to a 1.5M LiAsF<sub>6</sub>/1:1 (volume) ethylene carbonate-2-methyl THF electrolyte for use in a Li battery having an amorphous oxide V<sub>2</sub>O<sub>5</sub> and P<sub>2</sub>O<sub>5</sub> cathode. When cycled between 2 and 3.5 V, this battery had a charge-discharge efficiency of 96.1%, vs. 94.5% for a battery without the polymer.

IT 9017-80-5, Poly(vinylbenzyltrimethylammonium chloride)

RL: MOA (Modifier or additive use); USES (Uses)

(electrolytes containing, for secondary lithium batteries)

RN 9017-80-5 HCAPLUS

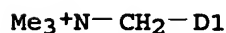
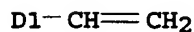
CN Benzenemethanaminium, ar-ethenyl-N,N,N-trimethyl-, chloride, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 26616-35-3

CMF C12 H18 N . Cl

CCI IDS





L42 ANSWER 68 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1988:613633 HCAPLUS

DN 109:213633

TI Electrolyte solutions for lithium batteries

IN Hirai, Toshiro; Tobishima, Shinichi; Arakawa, Masayasu; Yamaki, Junichi; Yoshimatsu, Isamu

PA Nippon Telegraph and Telephone Public Corp., Japan

SO Jpn. Kokai Tokkyo Koho, 9 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 63184269	A2	19880729	JP 1987-15292	19870127
PRAI	JP 1987-15292		19870127		

AB Electrolyte solns. of a Li salt in an organic solvent contain 1-100 mM tetraalkylammonium salts are used in Li batteries. Thus, an electrolyte of 1.5M LiAsF<sub>6</sub> and 0.01M cetyltrimethylammonium chloride dissolved in 2-methyltetrahydrofuran was used in a Li-V205 battery. When cycled at 1-mA between 2.0 and 3.5 V, this battery had a charge-discharge efficiency of 94.8%, vs. 94.2% for a battery without the chloride in its electrolyte, and the invention battery had less capacity decrease on cycling than the latter.

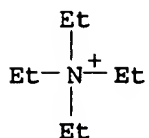
IT 56-34-8, Tetraethylammonium chloride

RL: USES (Uses)

(electrolyte containing, lithium salts, in organic solvent, for lithium batteries)

RN 56-34-8 HCAPLUS

CN Ethanaminium, N,N,N-triethyl-, chloride (9CI) (CA INDEX NAME)

● Cl<sup>-</sup>

L42 ANSWER 69 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1987:159587 HCAPLUS

DN 106:159587

TI Secondary nonaqueous battery

IN Kobayashi, Masao; Takeuchi, Masataka; Shishikura, Riichi; Sakai, Toshiyuki; Nakamura, Hidenori; Konuma, Hiro

PA Showa Denko K. K., Japan; Hitachi, Ltd.

SO Jpn. Kokai Tokkyo Koho, 8 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 61279073	A2	19861209	JP 1985-119743	19850604

PRAI JP 1985-119743

19850604

AB The battery uses aniline polymers for the cathode and a mixture of alkali metal and quaternary ammonium salts as the electrolyte. A pair of 6-cm<sup>2</sup> Pt electrodes were inserted 2-cm apart in a 1.5 M HBF<sub>4</sub> + 0.7 M PhNH<sub>2</sub> solution and a 120 A-s current was passed between the electrodes to form a polyaniline film on the pos. electrode, which was washed and dried; the polymer film was removed from the electrode and punched into 20-mm-diameter sheets. A battery was prepared using 1 polyaniline sheet as the cathode, a polyacetylene film anode, Pt screen collectors, a porous polypropylene separator, and a 1 M LiBF<sub>4</sub> + 0.1 M Bu<sub>4</sub>N+BF<sub>4</sub><sup>-</sup>/1:1 (volume) propylene carbonate-MeOC<sub>2</sub>H<sub>2</sub>OMe electrolyte. This cell had an energy d. of 167 W-L/kg at the 5th charging-discharging cycle, a maximum charging-discharging efficiency of 100%, a 2.0% self discharge after a 62-h storage, and its capacity dropped to 70% of its original value after 613 cycles, whereas the resp. values for a battery without Bu<sub>4</sub>N+BF<sub>4</sub><sup>-</sup> were 163 W-h/Kg, 98%, 5.1%, and 429 cycles.

IT 429-42-5, Tetrabutylammonium tetrafluoroborate

RL: USES (Uses)

(electrolytes containing lithium tetrafluoroborate, for secondary nonaq. batteries)

RN 429-42-5 HCAPLUS

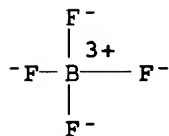
CN 1-Butanaminium, N,N,N-tributyl-, tetrafluoroborate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 14874-70-5

CMF B F4

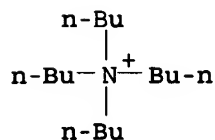
CCI CCS



CM 2

CRN 10549-76-5

CMF C16 H36 N



L42 ANSWER 70 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1987:87741 HCAPLUS

DN 106:87741

TI Secondary nonaqueous batteries

IN Nishio, Koji; Saito, Toshihiko; Furukawa, Saneshiro

PA Sanyo Electric Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 4 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 61208759	A2	19860917	JP 1985-50861	19850314
PRAI	JP 1985-50861		19850314		

AB The batteries having conductive polymer anode and nonaq. electrolyte containing alkali and quaternary ammonium salts provide smooth transition of the electrode reaction (doping with ammonium ions followed by alkali-metal ions at charging), high voltage, and long cyclic life. A battery was prepared using 9:1 polyacetylene-PTFE mixture for both electrodes and 0.9 LiClO<sub>4</sub> and 0.1M Bu<sub>4</sub>NClO<sub>4</sub> in propylene carbonate electrolyte. The battery showed more stable and higher capacity and voltage, and longer cycle life than control batteries using electrolytes containing 1M LiClO<sub>4</sub> or 1 M Bu<sub>4</sub>NClO<sub>4</sub>.

IT 1923-70-2

RL: USES (Uses)

(electrolytes from mixts. of lithium perchlorate and, for polyacetylene batteries)

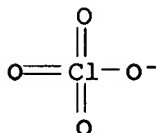
RN 1923-70-2 HCAPLUS

CN 1-Butanaminium, N,N,N-tributyl-, perchlorate (9CI) (CA INDEX NAME)

CM 1

CRN 14797-73-0

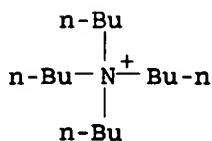
CMF C1 04



CM 2

CRN 10549-76-5

CMF C16 H36 N



L42 ANSWER 71 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1985:549598 HCAPLUS

DN 103:149598

TI Solid electrolyte for battery

PA Kao Corp., Japan

SO Jpn. Kokai Tokkyo Koho, 4 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 60097505	A2	19850531	JP 1983-205097	19831101
	JP 07077084	B4	19950816		

PRAI JP 1983-205097 19831101

AB Halide ion-conductive solid electrolyte from a quaternary ammonium halide containing C1-20 hydrocarbon groups is described for use in Li batteries at room temperature. Thus, a 2:1 mixture of (C7H15)4NBr and (C5H11)4NBr was melted and pelletized to obtain the electrolyte. A flat cell having approximation 13 mm diameter using these components, a Li anode and graphite mixture with Bu4NBr cathode showed 7 mA short circuit current. 500  $\Omega$  Internal resistance, and open-circuit voltage 3.0 V, at 55°.

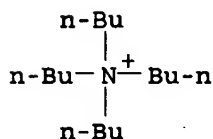
IT 1643-19-2

RL: PRP (Properties)

(cathode from graphite and, in lithium battery with quaternary ammonium halide electrolyte)

RN 1643-19-2 HCAPLUS

CN 1-Butanaminium, N,N,N-tributyl-, bromide (9CI) (CA INDEX NAME)

● Br<sup>-</sup>

L42 ANSWER 72 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1985:512139 HCAPLUS

DN 103:112139

TI The effects of cations in organic electrolytes on the discharge performance of (CF)<sub>n</sub> cathodes

AU Iijima, Takashi; Toyoguchi, Yoshinori

CS Cent. Res. Lab., Matsushita Electr. Ind. Co., Moriguchi, 570, Japan

SO Denki Kagaku oyobi Kogyo Butsuri Kagaku (1985), 53(7), 500-3

CODEN: DKOKAZ; ISSN: 0366-9297

DT Journal

LA Japanese

AB The discharge performance and cathodic polarization behavior of a (CF)<sub>n</sub> electrode of a Li battery were studied. The electrolytes examined were LiClO<sub>4</sub>, NaClO<sub>4</sub>, Bu<sub>4</sub>NClO<sub>4</sub>/propylene carbonate and LiClO<sub>4</sub>/propylene carbonate (PC) + 1,2-dimethoxyethane (DMF). The noblest discharge potential was observed in LiClO<sub>4</sub>. The highest (CF)<sub>n</sub> utilization during discharge and the largest (CF)<sub>n</sub> electrode limiting current during cathodic polarization were obtained in presence of Bu<sub>4</sub>NClO<sub>4</sub>. In LiClO<sub>4</sub>/PC + DME, the utilization and limiting current were greatly increased. The relation between the recovery potential of the (CF)<sub>n</sub> cathode and the logarithm of elapsed time was nonlinear. These results showed that (CF)<sub>n</sub> was satisfactorily discharged in the electrolytes containing no Li<sup>+</sup>.

IT 1923-70-2

RL: PRP (Properties)

(electrolyte, in lithium-graphite fluoride nonaq. battery, discharge in relation to)

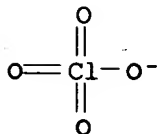
RN 1923-70-2 HCAPLUS

CN 1-Butanaminium, N,N,N-tributyl-, perchlorate (9CI) (CA INDEX NAME)

CM 1

CRN 14797-73-0

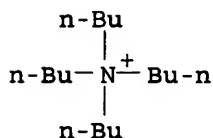
CMF Cl O4



CM 2

CRN 10549-76-5

CMF C16 H36 N



L42 ANSWER 73 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1985:223491 HCAPLUS

DN 102:223491

TI Electrolyte for lithium secondary battery

PA Nippon Telegraph and Telephone Public Corp., Japan

SO Jpn. Kokai Tokkyo Koho, 6 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 60030065	A2	19850215	JP 1983-138776	19830729
	JP 05003112	B4	19930114		
PRAI	JP 1983-138776		19830729		

AB A tertiary ammonium salt having ≥1 aromatic substituent is added to electrolyte containing Li salt in an organic solvent to obtain good charge-discharge properties of Li batteries. Thus, electrolyte for a test cell having Pt working electrode, Li counterelectrode, and Li reference electrode contained M LiClO<sub>4</sub> and 0.1M trimethylbenzylammonium chloride [56-93-9] in propylene carbonate. Current-voltage curves during repeated charge-discharge cycles showed smooth and efficient processes.

IT 56-93-9

RL: USES (Uses)

(electrolyte containing, battery, nonaq.  
lithium-)

RN 56-93-9 HCAPLUS

CN Benzenemethanaminium, N,N,N-trimethyl-, chloride (9CI) (CA INDEX NAME)

Me<sub>3</sub>N-CH<sub>2</sub>-Ph● Cl<sup>-</sup>

L42 ANSWER 74 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1985:223489 HCAPLUS

DN 102:223489

TI Solid-state ionic conductor

PA Kao Corp., Japan

SO Jpn. Kokai Tokkyo Koho, 5 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 60023974	A2	19850206	JP 1983-132363	19830720
	JP 08021388	B4	19960304		
PRAI	JP 1983-132363		19830720		

AB A solid ionic conductor is prepared by mixing cationic polymer (or its solution) with anionic polymer (or its solution) and optional removal of the solvent(s). Cationic polymers may be selected from polymers containing quaternary ammonium, sulfonium, and phosphonium salts, and the anionic polymer from polymers having -COOH, -SO<sub>3</sub>H, sulfate ester, H<sub>3</sub>PO<sub>4</sub>, H<sub>3</sub>PO<sub>3</sub> and H<sub>3</sub>PO<sub>2</sub> groups. The conductor is easy to form in any shape and has many uses such as in batteries, sensors, gas pumps, etc. Thus, 150 g 10% aqueous solution of polymer containing quaternary ammonium group (Polybrene) was mixed with 10 g Na polyacrylate in 500 g H<sub>2</sub>O, and the precipitate was purified by solvent extraction and dried. The anion:cation ratio was approx.1:1. The obtained complex (1.8 g) was mixed with 1 g LiClO<sub>4</sub>, H<sub>2</sub>O, and dried. The complex was successfully used as an electrolyte in a solid-state battery having Li anode and active C-fiber cathode. Battery voltage was 3 V at 100°. Charge-discharge cycles were repeated ≥10 times.

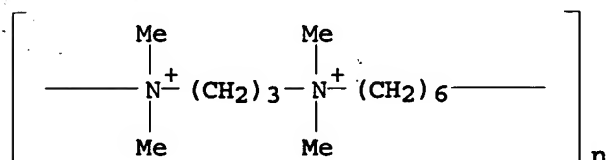
IT 28728-55-4D, reaction product of sodium polyacrylate

RL: USES (Uses)

(battery electrolyte, lithium-carbon fiber)

RN 28728-55-4 HCAPLUS

CN Poly[(dimethyliminio)-1,3-propanediyl(dimethyliminio)-1,6-hexanediyl dibromide] (9CI) (CA INDEX NAME)

●2 Br<sup>-</sup>

L42 ANSWER 75 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1985:169807 HCAPLUS

DN 102:169807

TI Batteries

IN Naarmann, Herbert; Muenstedt, Helmut

PA BASF A.-G. , Fed. Rep. Ger.

SO Ger. Offen., 19 pp.

CODEN: GWXXBX

DT Patent

LA German

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 3428843	A1	19850221	DE 1984-3428843	19840804
PRAI	DE 1983-3328634	A1	19830809		

AB A battery has  $\geq 2$  electrodes, the electrode active material of  $\geq 1$  electrode being from an elec. conducting, electrochem. oxidizable and/or reducible polymer, and an electrolyte from  $\geq 1$  ionic or ionizable compound supporting electrolyte dissolved or suspended in an organic solvent. As the electrolyte solvent  $\geq 1$  non-crosslinked dimer and/or oligomer of a heterocyclic compound is used. Thus, a sealed battery containing poly(Me methacrylate) casing; a Li anode; a polyacetylene [25067-58-7] cathode doped with 6% AsF<sub>6</sub><sup>-</sup>, elec. conductivity 100/ $\Omega$ -cm; and a 0.5M LiAsF<sub>6</sub> in THF-25% dioxane dimers electrolyte was prepared. The battery with an initial voltage of 4 V was discharged continuously via a load resistance to 2 V and recharged, and  $>50$  charge-discharge cycles were obtained with 100% yield.

IT 429-07-2

RL: USES (Uses)

(batter electrolyte containing THF dimer-,  
lithium-polyacetylene)

RN 429-07-2 HCAPLUS

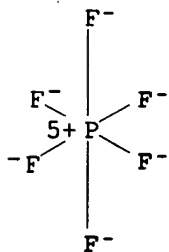
CN Ethanaminium, N,N,N-triethyl-, hexafluorophosphate(1-) (9CI) (CA INDEX  
NAME)

CM 1

CRN 16919-18-9

CMF F6 P

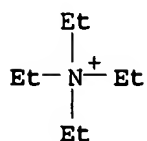
CCI CCS



CM 2

CRN 66-40-0

CMF C8 H20 N



L42 ANSWER 76 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN  
 AN 1985:152250 HCAPLUS  
 DN 102:152250  
 TI High capacity inorganic oxyhalide electrochemical cell  
 IN Walker, Charles W., Jr.; Wade, William L., Jr.; Binder, Michael; Gilman, Sol  
 PA United States Dept. of the Army, USA  
 SO U. S. Pat. Appl., 9 pp. Avail. NTIS Order No. PAT-APPL-6-653 116.  
 CODEN: XAXXAV  
 DT Patent  
 LA English  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 653116	A0	19850118	US 1984-653116	19840921
	US 4560628	A	19851224		
	CA 1244514	A1	19881108	CA 1985-484681	19850620
PRAI	US 1984-653116	A	19840921		

AB The title cell includes a Li anode, a C cathode, and a quaternary ammonium salt in an inorg. oxyhalide electrolyte. Thus, half cells were assembled with C rod, Li counterelectrode, and a Li reference electrode. LiAlCl<sub>4</sub> dissolved in SOCl<sub>2</sub> and SO<sub>2</sub>Cl<sub>2</sub> as well as Bu<sub>4</sub>NAlCl<sub>4</sub> [52749-00-5] dissolved in SOCl<sub>2</sub> and SO<sub>2</sub>Cl<sub>2</sub> were tested as electrolyte. The working electrode was discharged at constant current drain of 1.4 mA/cm<sup>2</sup> cathode area. The resp. cathode discharge times for M Bu<sub>4</sub>NAlCl<sub>4</sub>-SO<sub>2</sub>Cl<sub>2</sub>, M Bu<sub>4</sub>NAlCl<sub>4</sub>-SOCl<sub>2</sub>, 1.5M LiAlCl<sub>4</sub>-SO<sub>2</sub>Cl<sub>2</sub>, and M LiAlCl<sub>4</sub>-SOCl<sub>2</sub> were 384, 205, ≤4, and 2 min., resp.

IT 52749-00-5  
 RL: USES (Uses)  
 (battery electrolyte containing, lithium  
 -inorg. oxyhalide)

RN 52749-00-5 HCAPLUS

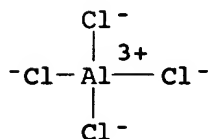
CN 1-Butanaminium, N,N,N-tributyl-, (T-4)-tetrachloroaluminate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 17611-22-2

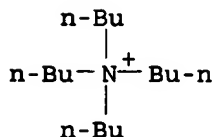
CMF Al Cl<sub>4</sub>

CCI CCS





CM 2

CRN 10549-76-5  
CMF C16 H36 N

L42 ANSWER 77 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1985:102449 HCAPLUS

DN 102:102449

TI Nonaqueous battery

PA Sanyo Electric Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 4 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 59191266	A2	19841030	JP 1983-67454	19830415
	JP 04054349	B4	19920831		
PRAI	JP 1983-67454		19830415		

AB A battery is composed of anode containing light metal such as Li or Na as active material, a cathode, and a nonaq. electrolyte solution of LiClO<sub>4</sub>/tetraalkylammonium salt in solvent. Using the mixed electrolyte improves discharge behavior under heavy load and at low temperature. Thus, a button-type nonaq. electrolyte battery was prepared using Li anode, MnO<sub>2</sub> cathode, and electrolyte mixture 0.5M Me<sub>4</sub>NBF<sub>4</sub> (or either Me<sub>4</sub>NPF<sub>6</sub> or Et<sub>4</sub>NClO<sub>4</sub>)/0.5M LiClO<sub>4</sub> (1:1) in 1:1 mixture of propylene carbonate/1,2-dimethoxyethane. The battery showed excellent behavior under heavy load and low temperature, compared with the battery using one-component electrolyte.

IT 558-32-7

RL: PRP (Properties)

(electrolyte, with lithium perchlorate in nonaq.

lithium-manganese dioxide battery)

RN 558-32-7 HCAPLUS

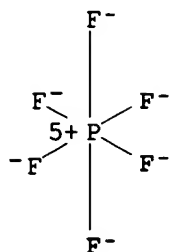
CN Methanaminium, N,N,N-trimethyl-, hexafluorophosphate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 16919-18-9

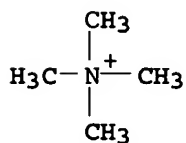
CMF F6 P

CCI CCS



CM 2

CRN 51-92-3  
CMF C4 H12 N



L42 ANSWER 78 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1985:28543 HCAPLUS

DN 102:28543

TI Controlling solubility of lithium salts in liquid sulfur dioxide

IN Connolly, John F.; Thrash, Robert J.

PA Standard Oil Co., USA

SO U.S., 12 pp.

CODEN: USXXAM

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 4482616	A	19841113	US 1983-508524	19830627
	CA 1216326	A1	19870106	CA 1984-456015	19840606
	IL 72072	A1	19870731	IL 1984-72072	19840611
	IN 161430	A	19871128	IN 1984-DE473	19840611
	AU 8429284	A1	19850103	AU 1984-29284	19840612
	AU 564413	B2	19870813		
	EP 130073	A2	19850102	EP 1984-304276	19840625
	EP 130073	A3	19860115		
	R: AT, BE, CH, DE, FR, GB, IT, LI, LU, NL, SE				
	JP 60041777	A2	19850305	JP 1984-132832	19840627
PRAI	US 1983-508524	A	19830627		

AB Solubility of Li salts in SO<sub>2</sub>-based solvent systems is enhanced and controlled by the presence of a salt which contains a cation selected from the group of metal cation complexes, quaternary ammonium cations, and organic phosphonium cations. Thus, several examples are presented to demonstrated that the solubility of Li salts (LiClO<sub>4</sub>, LiBF<sub>4</sub>, LiPF<sub>6</sub>, LiF, Li<sub>2</sub>SO<sub>4</sub>) in SO<sub>2</sub> can be controlled over an extremely large range by the simple expedient of adding a salt which contains ≥1 cation selected from the group of metal cation complexes such as Mn(2,2'-bipyridyl)<sub>3</sub>(ClO<sub>4</sub>)<sub>2</sub> and Mn(1,10-phenanthroline)<sub>3</sub>(ClO<sub>4</sub>)<sub>2</sub> and quaternary ammonium (Bu<sub>4</sub>NClO<sub>4</sub>,

tetrahexylammonium perchlorate, Me<sub>4</sub>NBF<sub>4</sub>, Bu<sub>4</sub>NBF<sub>4</sub>, Pr<sub>4</sub>NPF<sub>6</sub>, Et<sub>4</sub>NF, (Et<sub>4</sub>N)2SO<sub>4</sub>) cations.

IT 429-42-5

RL: USES (Uses)

(battery electrolyte containing, for control of solubility of lithium salts in sulfur dioxide-based solvent)

RN 429-42-5 HCAPLUS

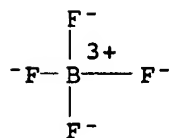
CN 1-Butanaminium, N,N,N-tributyl-, tetrafluoroborate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 14874-70-5

CMF B F4

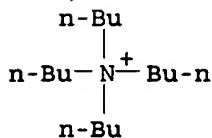
CCI CCS



CM 2

CRN 10549-76-5

CMF C16 H36 N



L42 ANSWER 79 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1984:560077 HCAPLUS

DN 101:160077

TI Nonaqueous-electrolyte battery

PA Sanyo Electric Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 3 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 59051472	A2	19840324	JP 1982-162704	19820917
	JP 03015302	B4	19910228		
PRAI	JP 1982-162704		19820917		

AB In a battery consisting of a light-metal anode (such as Li or Na), a cathode, and a nonaq. electrolyte containing a solvent and solute, the solute consists of LiClO<sub>4</sub> and Bu<sub>4</sub>NCl to increase the low-temperature discharge property.

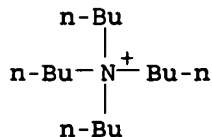
IT 1112-67-0

RL: PRP (Properties)

(electrolyte, with lithium perchlorate in nonaq.  
solvent for light metal battery)

RN 1112-67-0 HCAPLUS

CN 1-Butanaminium, N,N,N-tributyl-, chloride (9CI) (CA INDEX NAME)

● Cl<sup>-</sup>

L42 ANSWER 80 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1984:560075 HCAPLUS

DN 101:160075

TI Nonaqueous-electrolyte battery

PA Sanyo Electric Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 3 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 59051474	A2	19840324	JP 1982-162706	19820917
	JP 03051060	B4	19910805		
PRAI	JP 1982-162706		19820917		

AB In a battery consisting of a light-metal anode (such as Li or Na), a cathode, and a nonaq. electrolyte containing a solvent and solute, the solute consists of LiClO<sub>4</sub> and Bu<sub>4</sub>NClO<sub>4</sub> to increase the low-temperature discharge property.

IT 1923-70-2

RL: PRP (Properties)

(electrolyte, with lithium perchlorate in nonaq.  
solvent for light metal battery)

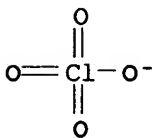
RN 1923-70-2 HCAPLUS

CN 1-Butanaminium, N,N,N-tributyl-, perchlorate (9CI) (CA INDEX NAME)

CM 1

CRN 14797-73-0

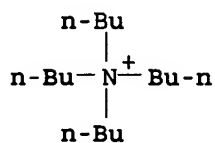
CMF Cl O4



CM 2

CRN 10549-76-5

CMF C16 H36 N



L42 ANSWER 81 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1984:513897 HCAPLUS

DN 101:113897

TI Lithium ion conductors of polyion complexes dispersed with lithium perchlorate and their application to solid-state batteries

AU Toyota, Shiro; Nogami, Takashi; Mikawa, Hiroshi

CS Fac. Eng., Osaka Univ., Suita, 565, Japan

SO Solid State Ionics (1984), 13(3), 243-7

CODEN: SSIOD3; ISSN: 0167-2738

DT Journal

LA English

AB Polyion complexes between poly(Na acrylate) or poly(2-acrylamino-2-methylpropane sulfonate) and polybrene were synthesized. After removal of NaBr, these polymers were dispersed with LiClO<sub>4</sub>, and their Li<sup>+</sup> conductivities were measured at 80-200°. Their ionic conductivities changed from 10<sup>-3</sup> to 10<sup>-8</sup> S/cm at 100-200°. These polymers and poly(ethylene oxide) dispersed with LiBF<sub>4</sub> were used as solid electrolytes of Li-activated C fiber (ACF) batteries and ACF-ACF capacitor.

IT 91826-24-3

RL: USES (Uses)

(battery electrolytes from lithium perchlorate-dispersed, properties of)

RN 91826-24-3 HCAPLUS

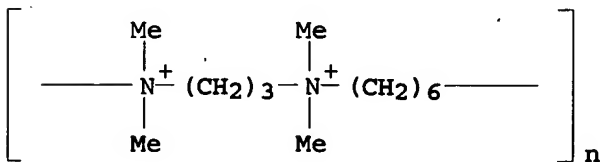
CN Poly[(dimethyliminio)-1,3-propanediyl(dimethyliminio)-1,6-hexanediyl], salt with 2-propenoic acid homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 31672-68-1

CMF (C13 H30 N2)n

CCI PMS



CM 2

CRN 49717-87-5

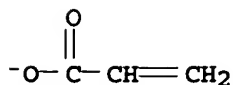
CMF (C3 H3 O2)x

CCI PMS

CM 3

CRN 10344-93-1

CMF C3 H3 O2



L42 ANSWER 82 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1980:553165 HCAPLUS

DN 93:153165

TI Nonaqueous-electrolyte batteries

PA Matsushita Electric Industrial Co., Ltd., Japan

SO Jpn. Tokkyo Koho, 4 pp.

CODEN: JAXXAD

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 55013114	B4	19800407	JP 1974-144845	19741216
PRAI	JP 1974-144845	A	19741216		

AB The title batteries consist of a Li, Na, Ca, Mg, or Al anode; a cathode containing a Ag or Ag-plated cathode collector; and a nonaq. electrolyte containing a halide which forms an insol. salt with Ag<sup>+</sup> ions. Thus, a fluorocarbon-Li battery was prepared with a cathode consisting of C powder, a fluorocarbon, a fluorocarbon resin, and a Ag-plated Ti collector; a Li anode; a nonwoven polypropylene cloth; and electrolyte of Et<sub>4</sub>NBr [71-91-0] propylene carbonates, and LiBF<sub>4</sub>. The battery has improved shelf life.

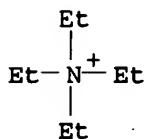
IT 71-91-0

RL: USES (Uses)

(battery electrolyte containing, lithium-)

RN 71-91-0 HCAPLUS

CN Ethanaminium, N,N,N-triethyl-, bromide (9CI) (CA INDEX NAME)

● Br<sup>-</sup>

L42 ANSWER 83 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1979:494422 HCAPLUS

DN 91:94422

TI Additive for high drain rate lithium cells

IN Margalit, Nehemiah; Krouse, Philip E.

PA ESB Inc., USA

SO U.S., 3 pp.  
 CODEN: USXXAM  
 DT Patent  
 LA English  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 4160070	A	19790703	US 1978-945414	19780925
	CA 1125848	A1	19820615	CA 1979-335954	19790919
	DE 2938416	A1	19800410	DE 1979-2938416	19790922
	DE 2938416	C2	19821202		
	DK 7903979	A	19800326	DK 1979-3979	19790924
	JP 55046299	A2	19800331	JP 1979-123096	19790925
PRAI	US 1978-945414	A	19780925		

AB Additives for high drain rate Li batteries comprise 0.01-0.1M Me<sub>4</sub>NPF<sub>6</sub> or Me<sub>4</sub>NBF<sub>4</sub>. Thus, improved performance of Li in additive-containing 2.5M LiAsF<sub>6</sub>-HCO<sub>2</sub>Me electrolyte in gassing and impurity-formation tests was demonstrated.

IT 558-32-7  
 RL: USES (Uses)  
 (battery electrolyte containing, organic lithium  
 -)

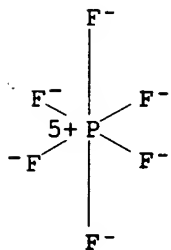
RN 558-32-7 HCAPLUS  
 CN Methanaminium, N,N,N-trimethyl-, hexafluorophosphate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 16919-18-9

CMF F6 P

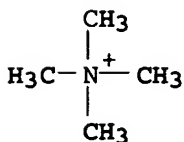
CCI CCS



CM 2

CRN 51-92-3

CMF C4 H12 N



AN 1979:476878 HCAPLUS  
 DN 91:76878  
 TI Solid-electrolyte battery  
 IN Suzuki, Shintaro; Kikuchi, Taisaburo; Tanaka, Koichi  
 PA Ray-O-Vac Co., (Japan) Ltd., Japan  
 SO Jpn. Kokai Tokkyo Koho, 3 pp.  
 CODEN: JKXXAF

DT Patent  
 LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 54050827	A2	19790421	JP 1977-116413	19770928
	JP 57009474	B4	19820222		
PRAI	JP 1977-116413	A	19770928		

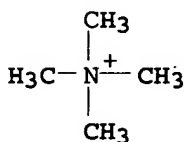
AB. The battery consists of a Li anode, a Li+-conducting solid electrolyte, and a nonmetal iodide anode. The anode surface is coated with solid electrolyte to prevent the migration of gaseous I to the cathode side. Thus, a solid electrolyte battery was prepared with a Me4NI [75-58-1]-I-graphite cathode, a LiI solid electrolyte, and a Li anode with a Cu collector. The battery had a terminal voltage of .apprx.2.8 V for 200 h vs. <2.3 V for a conventional solid-electrolyte battery.

IT 75-58-1

RL: DEV (Device component use); USES (Uses)  
 (cathodes containing, in solid-electrolyte battery with lithium anode)

RN 75-58-1 HCAPLUS

CN Methanaminium, N,N,N-trimethyl-, iodide (9CI) (CA INDEX NAME)



● I<sup>-</sup>

L42 ANSWER 85 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1977:520496 HCAPLUS  
 DN 87:120496  
 TI Organic-electrolyte batteries  
 IN Eda, Nobuo; Iijima, Takashi  
 PA Matsushita Electric Industrial Co., Ltd., Japan  
 SO Jpn. Kokai Tokkyo Koho, 3 pp.  
 CODEN: JKXXAF

DT Patent  
 LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 52014831	A2	19770204	JP 1975-90891	19750724
	JP 58016301	B4	19830330		
PRAI	JP 1975-90891	A	19750724		

AB A polycationic polymer is added to organic electrolytes for batteries made



with light-metal anodes. Storing stability and discharge characteristics are improved. Thus, 1.2 g of a 100:7:13 graphite fluoride-acetylene black-fluorocarbon polymer mixture was compacted with expanded Ti (1 + 10 cm) at 0.5 ton/cm<sup>2</sup>, welded to a Ti lead wire, wrapped with unwoven polypropylene cloth as separator, dried, wrapped with a Li anode, fixed in a Ni-plated Fe cylinder by welding, and dipped into an electrolyte of a 1:1 (by volume) propylene carbonate and 1,2-dimethoxyethane mixture containing LiClO<sub>4</sub> 1.5 and poly(allyltrimethylammonium perchlorate) (I) [63911-71-7] 10-3 mol/L to obtain a battery. When the battery was discharged at a constant resistance of 250  $\Omega$  and 70°, the terminal potential was .apprx.2.0 V after 80 h, compared to 1.5 V after 75 h for that of a battery whose electrolyte did not contain I.

IT 63911-71-7

RL: USES (Uses)

(battery electrolyte containing, graphite fluoride-lithium)

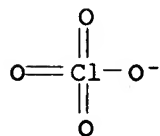
RN 63911-71-7 HCAPLUS

CN 2-Propen-1-aminium, N,N,N-trimethyl-, perchlorate, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 14797-73-0

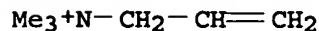
CMF Cl O4



CM 2

CRN 10250-84-7

CMF C6 H14 N



L42 ANSWER 86 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1977:124206 HCAPLUS

DN 86:124206

TI Polyhalide high energy density cells

IN Eustace, Daniel J.; Rao, Bhaskara M. L.

PA Exxon Research and Engineering Co., USA

SO U.S., 5 pp.

CODEN: USXXAM

DT Patent

LA English

FAN.CNT 1

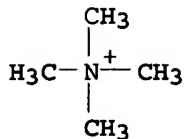
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 3997362	A	19761214	US 1975-621761	19751014
	CA 1042065	A1	19781107	CA 1976-260804	19760909
	GB 1551987	A	19790905	GB 1976-38221	19760915

JP 52049423 A2 19770420 JP 1976-113582 19760921  
NL 7610906 A 19770418 NL 1976-10906 19761001  
CH 625084 A 19810831 CH 1976-12660 19761006  
DE 2645203 A1 19770428 DE 1976-2645203 19761007  
FR 2328300 A1 19770513 FR 1976-30521 19761011  
FR 2328300 B1 19811127  
BE 847221 A1 19770413 BE 1976-171461 19761013  
PRAI US 1975-621761 A 19751014  
AB A battery comprises an alkali-metal anode, a cathode, an oxidizer of  
≥1 quaternary ammonium polyhalide salt, and a dipolar aprotic  
electrolyte containing an ionizable salt of an alkali metal. Thus, a battery  
included a Li anode, a cathode prepared by dry pressing a mixture of NMe4Br3  
[15625-56-6] and carbon black on a Ni grid, and an electrolyte of LiPF6  
[21324-40-3] in propylene carbonate. The open-circuit voltage of the  
battery was 3.6 V.  
IT 15625-56-6  
RL: DEV (Device component use); USES (Uses)  
(cathodes containing, in organic-electrolyte battery with  
lithium anode)  
RN 15625-56-6 HCAPLUS  
CN Methanaminium, N,N,N-trimethyl-, (tribromide) (9CI) (CA INDEX NAME)  
CM 1  
CRN 14522-80-6  
CMF Br3

Br-Br<sup>-</sup>-Br

CM 2

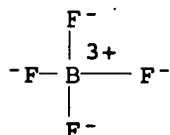
CRN 51-92-3  
CMF C4 H12 N



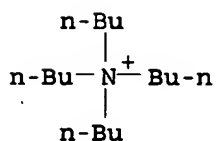
L42 ANSWER 87 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN  
AN 1977:19513 HCAPLUS  
DN 86:19513  
TI Sealed lithium-bromine cell  
IN Farrington, Gregory C.; Roth, Walter L.  
PA General Electric Co., USA  
SO U.S., 7 pp.  
CODEN: USXXAM  
DT Patent  
LA English  
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI US 3976505 A 19760824 US 1975-589137 19750623  
 PRAI US 1974-517511 A2 19741024  
 AB A sealed Li-Br battery comprises a casing; an anode positioned within the casing; the anode being Li, a Li amalgam, or Li in a nonaq. electrolyte; a cathode positioned within the casing; the cathode comprising Br with an ionic conductivity-enhancing material; and a solid electrolyte positioned within the casing between the anode and cathode. The electrolyte has an approx. composition of  $\text{LiNaO} \cdot 0.9\text{Al}_2\text{O}_3$  of which 1.3-85% of the total alkali-ion content is Li.  
 IT 429-42-5  
 RL: USES (Uses)  
 (battery electrolyte containing, bromine-lithium sealed-)  
 RN 429-42-5 HCAPLUS  
 CN 1-Butanaminium, N,N,N-tributyl-, tetrafluoroborate(1-) (9CI) (CA INDEX NAME)  
 CM 1  
 CRN 14874-70-5  
 CMF B F4  
 CCI CCS



CM 2  
 CRN 10549-76-5  
 CMF C16 H36 N



L42 ANSWER 88 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN.  
 AN 1977:7161 HCAPLUS  
 DN 86:7161  
 TI Sealed lithium-iodine cell  
 IN Farrington, Gregory C.; Roth, Walter L.  
 PA General Electric Co., USA  
 SO U.S., 9 pp.  
 CODEN: USXXAM  
 DT Patent  
 LA English  
 FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 3976504	A	19760824	US 1975-589135	19750623

PRAI US 1974-517512 A2 19741024

AB A sealed Li-I battery comprises a casing; an anode positioned within the casing; the anode being Li, a Li amalgam, or Li in a nonaq. electrolyte; a cathode positioned within the casing; the cathode comprising I or I with an ionic conductivity-enhancing material; and a solid electrolyte positioned within the casing between the anode and cathode. The electrolyte has an approx. composition of  $\text{LiNaO.9Al}_2\text{O}_3$  of which 1.3-85% of the total alkali-ion content is Li.

IT 429-42-5

RL: USES (Uses)

(battery electrolyte containing, iodine-lithium sealed-)

RN 429-42-5 HCAPLUS

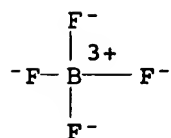
CN 1-Butanaminium, N,N,N-tributyl-, tetrafluoroborate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 14874-70-5

CMF B F4

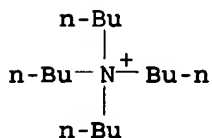
CCI CCS



CM 2

CRN 10549-76-5

CMF C16 H36 N



L42 ANSWER 89 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1976:526994 HCAPLUS

DN 85:126994

TI Sealed lithium-reducible sulfur oxyhalide cell

IN Roth, Walter L.; Farrington, Gregory C.

PA General Electric Co., USA

SO U.S., 8 pp.

CODEN: USXXAM

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	US 3953228	A	19760427	US 1975-557583	19750312
PRAI	US 1975-557583	A	19750312		

AB A sealed Li-reducible S oxyhalide battery comprises a casing; an anode positioned within the casing, the anode selected from the class consisting of Li, Li amalgam, and Li in a nonaq. electrolyte; a cathode positioned within the casing, the cathode consisting of a reducible S oxyhalide, and a reducible S oxyhalide with an ionic conductivity enhancing material; and a solid Li-Na aluminate electrolyte positioned within the casing between the anode and cathode. The solid electrolyte has an approx. composition of  $\text{LiNaO.9Al}_2\text{O}_3$  of which 1.3-85% of the total alkali-ion content is Li. Thus, the resp. open-circuit voltages of Li-SOCl<sub>2</sub> and Li-AlCl<sub>3</sub>-saturated SO<sub>2</sub>Cl<sub>2</sub> batteries were 4.2 and 4.1 V. The chamber of the anode portion of each battery was provided with an electrolyte of propylene carbonate with dissolved LiClO<sub>4</sub> [7791-03-9] and NBu<sub>4</sub>BF<sub>4</sub> [429-42-5].

IT 429-42-5

RL: USES (Uses)

(battery electrolyte containing, sealed lithium  
-sulfur oxyhalide)

RN 429-42-5 HCAPLUS

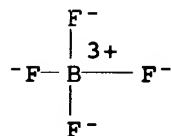
CN 1-Butanaminium, N,N,N-tributyl-, tetrafluoroborate(1-). (9CI) (CA INDEX  
NAME)

CM 1

CRN 14874-70-5

CMF B F4

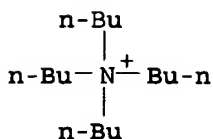
CCI CCS



CM 2

CRN 10549-76-5

CMF C16 H36 N



L42 ANSWER 90 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1976:526993 HCAPLUS

DN 85:126993

TI Sealed lithium-reducible metal salt cell

IN Roth, Walter L.; Farrington, Gregory C.

PA General Electric Co., USA

SO U.S., 11 pp.

CODEN: USXXAM

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 3953232	A	19760427	US 1975-572278	19750428
PRAI	US 1975-572278	A	19750428		

AB A sealed Li-reducible metal salt battery for ambient temperature operation comprises a casing; an anode positioned within the casing, the anode selected from the class consisting of Li, Li amalgam, and Li in a nonaq. electrolyte; a cathode positioned within the casing, the cathode comprising a reducible metal oxide or salt, e.g., AgO, MoO<sub>3</sub>, PbS, MoS<sub>2</sub>, CuF<sub>2</sub>, AgCl, NiCl<sub>2</sub>, CuI<sub>2</sub>, PbI<sub>2</sub>, and AgI, with an ionic conductivity enhancing material; and a solid Li-Na aluminate electrolyte positioned within the casing between the anode and cathode. The solid electrolyte has an approx. composition of LiNaO.Al<sub>2</sub>O<sub>3</sub> of which 1.3-85% of the total alkali-ion content is Li.

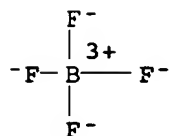
IT 429-42-5  
RL: USES (Uses)  
(battery electrolyte containing, sealed lithium  
-metal oxide or metal salt)

RN 429-42-5 HCAPLUS

CN 1-Butanaminium, N,N,N-tributyl-, tetrafluoroborate(1-) (9CI) (CA INDEX NAME)

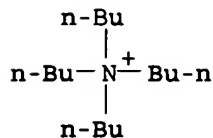
CM 1

CRN 14874-70-5  
CMF B F4  
CCI CCS



CM 2

CRN 10549-76-5  
CMF C16 H36 N



L42 ANSWER 91 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN  
AN 1976:526991 HCAPLUS  
DN 85:126991  
TI Sealed lithium-reducible phosphorous oxyhalide cell  
IN Roth, Walter L.; Farrington, Gregory C.  
PA General Electric Co., USA  
SO U.S., 7 pp.  
CODEN: USXXAM  
DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 3953229	A	19760427	US 1975-557584	19750312
PRAI	US 1975-557584	A	19750312		

AB A sealed Li-reducible P oxyhalide battery comprises a casing; an anode positioned within the casing, the anode selected from the class consisting of Li, Li amalgam, and Li in a nonaq. electrolyte; a cathode positioned within the casing, the cathode consisting of a reducible P oxyhalide, and a reducible P oxyhalide with an ionic conductivity enhancing material; and a solid Li-Na aluminate electrolyte positioned within the casing between the anode and cathode. The solid electrolyte has an approx. composition of  $\text{LiNaO.9Al}_2\text{O}_3$  of which 1.3-85% of the total alkali-ion content is Li.

IT 429-42-5

RL: USES (Uses)

(battery electrolyte containing, sealed lithium  
-phosphorous oxychloride)

RN 429-42-5 HCAPLUS

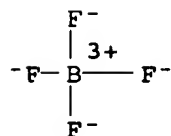
CN 1-Butanaminium, N,N,N-tributyl-, tetrafluoroborate(1-) (9CI) (CA INDEX  
NAME)

CM 1

CRN 14874-70-5

CMF B F4

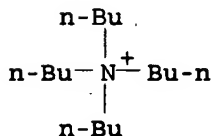
CCI CCS



CM 2

CRN 10549-76-5

CMF C16 H36 N



L42 ANSWER 92 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1976:526990 HCAPLUS

DN 85:126990

TI Sealed lithium-sulfur monochloride cell

IN Roth, Walter L.; Farrington, Gregory C.

PA General Electric Co., USA

SO U.S., 7 pp.

CODEN: USXXAM

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	US 3953233	A	19760427	US 1975-559990	19750319
PRAI	US 1975-559990	A	19750319		

AB A sealed Li-Scl battery comprises a casing; an anode positioned within the casing, the anode selected from the class consisting of Li, Li amalgam, and Li in a nonaq. electrolyte; a cathode positioned within the casing, the cathode consisting of SCl with an ionic conductivity enhancing material; and a solid Li-Na aluminate electrolyte positioned within the casing between the anode and cathode. The solid electrolyte has an approx. composition of  $\text{LiNaO.9Al}_2\text{O}_3$  of which 1.3-85% of the total alkali-ion content is Li.

IT 429-42-5

RL: USES (Uses)

(battery electrolyte containing, sealed lithium  
-sulfur monochloride)

RN 429-42-5 HCAPLUS

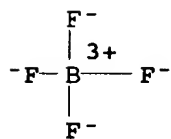
CN 1-Butanaminium, N,N,N-tributyl-, tetrafluoroborate(1-) (9CI) (CA INDEX  
NAME)

CM 1

CRN 14874-70-5

CMF B F4

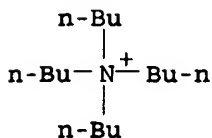
CCI CCS



CM 2

CRN 10549-76-5

CMF C16 H36 N



L42 ANSWER 93 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1976:526988 HCAPLUS

DN 85:126988

TI Sealed lithium-solid sulfur cell

IN Farrington, Gregory C.; Roth, Walter L.

PA General Electric Co., USA

SO U.S., 7 pp.

CODEN: USXXAM

DT Patent

LA English



FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 3953231	A	19760427	US 1975-571556	19750425
PRAI	US 1975-571556	A	19750425		

AB A sealed Li-solid S battery for ambient temperature operation comprises a casing; an anode positioned within the casing, the anode selected from the class consisting of Li, Li amalgam, and Li in a nonaq. electrolyte; a cathode positioned within the casing, the cathode comprising solid S in a nonaq. electrolyte with an ionic conductivity enhancing material; and a solid Li-Na aluminate electrolyte positioned within the casing between the anode and cathode. The solid electrolyte has an approx. composition of  $\text{LiNaO.9Al}_2\text{O}_3$  of which 1.3-85% of the total alkali-ion content is Li.

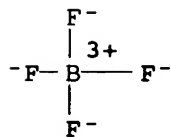
IT 429-42-5  
 RL: USES (Uses)  
 (battery electrolyte containing, sealed lithium-sulfur)

RN 429-42-5 HCAPLUS

CN 1-Butanaminium, N,N,N-tributyl-, tetrafluoroborate(1-) (9CI) (CA INDEX NAME)

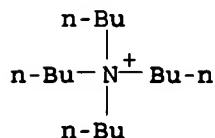
CM 1

CRN 14874-70-5  
 CMF B F4  
 CCI CCS



CM 2

CRN 10549-76-5  
 CMF C16 H36 N



L42 ANSWER 94 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1976:496865 HCAPLUS

DN 85:96865

TI Nonaqueous batteries

IN Blomgren, George E.; Kronenberg, Marvin L.

PA Union Carbide Corp., USA

SO Ger. Offen., 24 pp.  
 CODEN: GWXXBX

DT Patent

LA German

## FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 2521216	A1	19751204	DE 1975-2521216	19750513
	DE 2521216	B2	19790920		
	DE 2521216	C3	19800529		
	US 4444855	A	19840424	US 1974-474267	19740529
	CA 1039806	A1	19781003	CA 1975-225980	19750429
	BE 829605	A1	19751128	BE 1975-156808	19750528
	FR 2273379	A1	19751226	FR 1975-16653	19750528
	FR 2273379	B1	19790323		
	JP 51001937	A2	19760109	JP 1975-63992	19750528
	JP 54000291	B4	19790109		
PRAI	US 1974-474267	A	19740529		

AB A nonaq. battery comprises a Li anode, a graphite cathode current collector and a nonaq. electrolyte containing a depolarizer from the group of S<sub>2</sub>Cl<sub>2</sub>, S<sub>2</sub>Br<sub>2</sub>, SeF<sub>4</sub>, Se<sub>2</sub>Br<sub>2</sub>, PSCl<sub>3</sub>, PSBr<sub>3</sub>, VF<sub>5</sub>, PbCl<sub>4</sub>, TiCl<sub>4</sub>, S<sub>2</sub>F<sub>10</sub>, SnBrCl<sub>3</sub>, SnBr<sub>2</sub>Cl<sub>2</sub>, SnBr<sub>3</sub>Cl or their mixts. The electrolyte comprises an organic solvent and LiAlCl<sub>4</sub>, LiBr + AlBr<sub>3</sub>, LiClO<sub>4</sub>, or Bu<sub>4</sub>NBr [1643-19-2].

IT 1643-19-2

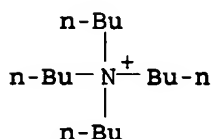
RL: USES (Uses)

(battery electrolyte containing, nonaq. lithium

-)

RN 1643-19-2 HCAPLUS

CN 1-Butanaminium, N,N,N-tributyl-, bromide (9CI) (CA INDEX NAME)

● Br<sup>-</sup>

L42 ANSWER 95 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1976:480843 HCAPLUS

DN 85:80843

TI Polyalkylene glycol ethers in rechargeable lithium nonaqueous batteries

IN Broadhead, John; Putvinski, Thomas M.; Trumbore, Forrest A.

PA Bell Telephone Laboratories, Inc., USA

SO U.S., 6 pp.

CODEN: USXXAM

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 3928067	A	19751223	US 1974-503853	19740906
PRAI	US 1974-503853	A	19740906		

AB Improved recycling of Li non-aqueous secondary batteries is obtained by using certain dopants which can act also as wetting agents for the polypropylene separators. These batteries exhibit increased cycle life and cycle efficiency. They are easily manufactured since vacuum filling to wet the separator is not necessary. The dopants include polyalkylene glycol ethers, tetraalkylammonium halides, and Li salts, preferred materials

being tetrabutylammonium chloride, tetrabutylammonium iodide, LiI, and LiClO<sub>4</sub>. A preferred solvent for the dopants is propylene carbonate.

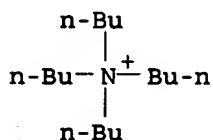
IT 311-28-4

RL: USES (Uses)

(battery electrolyte containing, lithium  
-niobium triselenide nonaq.)

RN 311-28-4 HCAPLUS

CN 1-Butanaminium, N,N,N-tributyl-, iodide (9CI) (CA INDEX NAME)

● I<sup>-</sup>

L42 ANSWER 96 OF 96 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1976:449218 HCAPLUS

DN 85:49218

TI Sealed lithium-phosphorous cell

IN Farrington, Gregory C.; Roth, Walter L.

PA General Electric Co., USA

SO U.S., 7 pp.

CODEN: USXXAM

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 3953230	A	19760427	US 1975-571500	19750425
PRAI	US 1975-571500	A	19750425		

AB A sealed Li-P battery for ambient temperature and of long storage life comprises a casing, a Li or Li amalgam anode, a P cathode, a nonaq. electrolyte, and a Li ion-conductive electrolyte (Mg- and Li-containing  $\beta$ -alumina [11138-49-1]) positioned with the casing between the anode and cathode. Thus, a battery with a Li-foil anode, a P-pressed on a Ni screen cathode, LiClO<sub>4</sub> [7791-03-9]-Bu<sub>4</sub>NBF<sub>4</sub> [429-42-5]-propylene carbonate electrolyte, and Mg- and Li-containing  $\beta$ -alumina solid electrolyte had an open-circuit voltage 3.0 V.

IT 429-42-5

RL: USES (Uses)

(battery electrolyte, lithium-phosphorus)

RN 429-42-5 HCAPLUS

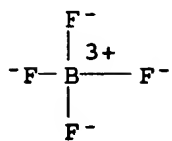
CN 1-Butanaminium, N,N,N-tributyl-, tetrafluoroborate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 14874-70-5

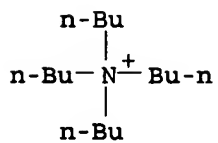
CMF B F4

CCI CCS



CM 2

CRN 10549-76-5  
CMF C16 H36 N



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